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ABSTRACT

Designed to define the academic writing skills required of beginning undergraduate and graduate students, a survey of needed academic writing skills was completed by faculty in 190 academic departments at 34 American and Canadian universities with high foreign student enrollments. At the graduate level, six academic disciplines with relatively high numbers of non-native students were surveyed: business management, civil and electrical engineering, psychology, chemistry, and computer science. Undergraduate English departments were chosen to document the skills needed by undergraduate students. The faculty members surveyed appear to view the written communicative competencies of their students predominantly from the perspective of sociolinguistic competence, placing considerably less emphasis on grammatical competence. Although some important common elements among the different departments were reported, the survey data distinctly indicate that different disciplines do not uniformly agree on the writing task demands and on a single preferred mode of discourse for evaluating entering undergraduate and graduate students. (Author/PN)

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TOEFL

TEST OF ENGLISH AS A FOREIGN LANGUAGE

Research Reports

REPORT 15
SEPTEMBER 1983

Survey of Academic Writing Tasks Required of Graduate and Undergraduate Foreign Students

Brent Bridgeman
Sybil Carlson

U.S. DEPARTMENT OF EDUCATION
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ETS
EDUCATIONAL TESTING SERVICE

The Test of English as a Foreign Language (TOEFL) was developed in 1963 by a National Council on the Testing of English as a Foreign Language, which was formed through the cooperative effort of over thirty organizations, public and private, that were concerned with testing the English proficiency of non-native speakers of the language applying for admission to institutions in the United States. In 1965, Educational Testing Service (ETS) and the College Board assumed joint responsibility for the program and in 1973 a cooperative arrangement for the operation of the program was entered into by ETS, the College Board, and the Graduate Record Examinations (GRE) Board. The membership of the College Board is composed of schools, colleges, school systems, and educational associations; GRE Board members are associated with graduate education.

ETS administers the TOEFL program under the general direction of a Policy Council that was established by, and is affiliated with, the sponsoring organizations. Members of the Policy Council represent the College Board and the GRE Board and such institutions and agencies as graduate schools of business, junior and community colleges, nonprofit educational exchange agencies, and agencies of the United States government.

A continuing program of research related to TOEFL is carried out under the direction of the TOEFL Research Committee. Its six members include representatives of the Policy Council, the TOEFL Committee of Examiners, and distinguished English-as-a-second-language specialists from the academic community. Currently the committee meets twice yearly to review and approve proposals for test-related research and to set guidelines for the entire scope of the TOEFL research program. Members of the Research Committee serve three-year terms at the invitation of the Policy Council; the chair of the committee serves on the Policy Council.

Because the studies are specific to the test and the testing program, most of the actual research is conducted by ETS staff rather than by outside researchers. However, many projects require the cooperation of other institutions, particularly those with programs in the teaching of English as a foreign or second language. Representatives of such programs who are interested in participating in or conducting TOEFL-related research are invited to contact the TOEFL program office. Local research may sometimes require access to TOEFL data. In such cases, the program may provide this data following approval by the Research Committee. All TOEFL research projects must undergo appropriate ETS review to ascertain that the confidentiality of data will be protected.

Current (1981-82) members of the TOEFL Research Committee include the following:

G. Richard Tucker (chair)	Center for Applied Linguistics
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Diane Larsen-Freeman	The Experiment in International Living
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Survey of Academic Writing Tasks Required of Graduate and Undergraduate Foreign Students

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Princeton, New Jersey

RR 83-18

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Abstract

A survey of the academic writing skills needed by beginning undergraduate and graduate students was conducted. Faculty in 190 academic departments at thirty-four U.S. and Canadian universities with high foreign student enrollments completed the questionnaire. At the graduate level, six academic disciplines with relatively high numbers of nonnative students were surveyed: business management (MBA), civil engineering, electrical engineering, psychology, chemistry, and computer science. Undergraduate English departments were chosen to document the skills needed by undergraduate students.

The major findings are summarized below.

- Although writing skill was rated as important to success in graduate training, it was consistently rated as even more important to success after graduation.
- Even disciplines with relatively light writing requirements (e.g., electrical engineering) reported that some writing is required of first-year students.
- The writing skills perceived as most important varied across departments.
- Faculty members reported that, in their evaluations of student writing, they rely more on discourse-level characteristics than on word- or sentence-level characteristics.
- Discourse-level writing skills of natives and nonnatives were perceived as fairly similar, but significant differences between natives and nonnatives were reported for sentence- and word-level skills and for overall writing.
- Among the ten writing sample topic types provided, preferred topic types differed across departments.

Although some important common elements among the different departments were reported, the survey data distinctly indicate that different disciplines do not uniformly agree on the writing task demands and on a single preferred mode of discourse for evaluating entering undergraduate and graduate students.

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Section I. Introduction and Background

The Test of English as a Foreign Language (TOEFL)® was designed to assist academic institutions in determining whether applicants have attained sufficient proficiency in English to study at those institutions. An important component of that general proficiency is the ability to write clearly and grammatically in English. A recent informal survey of professionals in the field of English as a second language (ESL) by Hale and Hinofotis (1981, 1983) identified the measurement of productive skills (e.g., speaking and writing) as potentially useful for preadmission testing and for making placement decisions. A report by Angelis (1982) reached the same general conclusion. Angelis surveyed graduate faculty members in engineering and business, the two fields that enroll the largest numbers of foreign students. He found that graduate faculty members in engineering ranked writing highest on the list of foreign student deficiencies; business faculty also listed the writing deficiencies of foreign students as a major concern. Furthermore, many respondents believed that TOEFL does a limited job of providing information about productive skills such as writing. Most frequently, respondents felt that there may be little relationship between knowledge of grammar and actual writing skill. Therefore, it is important to determine the extent to which the current version of TOEFL is a valid indicator of the English writing skills required of applicants to undergraduate and graduate institutions in the United States and Canada. However, before a meaningful validation study of TOEFL can be conducted, the academic writing skills required of beginning undergraduates and graduate students must be defined. The purpose of this project was to provide that definition.

Criticisms of Current Writing Assessment Measures

Other standardized examinations and assessment procedures recently have drawn criticism, typically from linguistics and English language educators, with respect to their narrow definition of writing competence. Troyka (1982), in fact, traces a decade of resolutions brought to the annual meetings of the Conference on College Composition and Communication (CCCC), a major affiliate of the National Council of Teachers of English (NCTE). Throughout the 1970s, this organization condemned multiple-choice measures of writing as narrowly focused and as gross distortions of writing competence. Expressing a preference for tests that require direct measures, or writing samples, the group now attempts to recommend more valid alternatives to the indirect measures to which they object. Lloyd-Jones (1982) criticizes both indirect and direct measures of writing that are currently in use, warning that they may understate the competence of many candidates who might otherwise succeed. Rather than being abolished, these tests must be interpreted in light of their limitations. Although writing samples most nearly approximate real discourse, numerous problems also are associated with them; Lloyd-Jones claims, "A writing sample is not real writing" (1982, p. 3). He recognizes, however, that objective (indirect) measures are based on limited,

discrete elements of language. The evaluation of separate elements of writing skills, he believes, is not equivalent to the evaluation of actual discourse, since good writing consists of a blend of skills, not of an additive sum of these skills viewed separately.

Odell (1981), a noted spokesman in the field of writing instruction and assessment, voices similar views. He defines competence in writing as "... the ability to discover what one wishes to say and to convey one's message through language, syntax and content that are appropriate for one's audience and purpose" (p. 103). In contrast to the more narrowly constrained measures of writing ability presently available, Odell cites the work of Moffett (1968), Kinneavy (1971), and others, who have clarified the great diversity of writing tasks in the "real" world. Although all theorists do not agree on the specific categorization of tasks, they generally agree that:

1. Writing includes many modes, with diverse purposes and audiences.

2. These different modes, purposes, and audiences require different organizational strategies of written production.

Thus, Odell likewise criticizes current indirect measures of writing ability for their undue emphasis on error recognition, and for their failure to reflect the skills that are needed to generate good writing. With respect to his definition of writing competence, one that is predominantly accepted by others in the field, Odell also highlights the shortcomings of direct measures of writing as they are prevalently used: the failure to specify purpose and audience, and the varying perceptions of judges, who are apt to use different standards and attend to different aspects of writing in their evaluations of writing samples. Odell emphasizes the need to analyze writing sample topics from the standpoint of the skills and tasks that are required, e.g., chronological or analytical development, drawing from different sources, recognizing personal assumptions or the assumptions of others.

This prevalent definition of writing competence, with the recognition that written production may call for diverse modes, purposes, and audiences that require different organizational structures, was recently examined in a study conducted by Quellmalz, Capell, and Chou (1982). They attempted to compare the writing competency profiles derived by tests differing in discourse mode and response mode. Measures of writing can demand different discourse modes, such as narrative or expository, which may tap different cognitive skills, hence different levels of performance within the modes. In addition, measures of writing can assess skills either directly (production) or indirectly (recognition), thus imposing task features that elicit different strategies and possibly yield different evaluations of writing competence. These researchers stated that, "In practice, many current writing assessment programs fail to consider the validity of test data that do not distinguish among the demands of writing tasks and between the requirements of production and selection. At heart, the issue is one of construct validity: do these alternative task and processing variables measure the same thing? Our results indicate that this is not the case" (p. 255).

Quellmalz and associates subjected their data on writing measures to several analyses, confirming that levels of performance vary on tasks with different writing purposes, thus questioning the assumption that "a good writer is a good writer" (p. 255). These results emphasize the importance of clarifying the demands that are required by different, specific writing tasks; with regard to their comparison of direct and indirect measures, however, the results were not as definitive. Quellmalz and associates noted that response mode effects were present in varying degrees; in particular, organization was most influenced by the response requirements of the task. With respect to their comparison results concerning discourse modes, however, they concluded that the time savings obtained with more indirect measures of writing do not offset the loss of distinctive information obtained through direct measures.

The foregoing views of writing competence, especially the recognition of the specific task demands elicited by particular writing tasks, reflect the current orientation in the field of linguistics toward the approach known as functionally based communicative competence.

Functionally Based Communicative Competency

Linguists who have investigated the dimensions of second language teaching and testing (Canale & Swain, 1979; Munby, 1981; Walz, 1982) stress a functionally based communicative approach as opposed to a grammatically based approach. One justification for this emphasis is the face validity of the materials and syllabus on which second language learning is based. From the standpoint of the learner, Canale and Swain provide two "subjective reasons" for their point of view: (1) the more positive consequences for learner motivation resulting from less emphasis on "communicative incompetence" and more emphasis on the communicative purpose of language and (2) the "more natural integration of knowledge of the second language culture, knowledge of the second language, and knowledge of language in general" (p. 50). Such functional approaches to second language learners underscore the previously mentioned discrepancies between knowledge of grammar and actual written production in present measures of language skills. With regard to the testing of communication in a second language, Canale and Swain, among others, distinguish between communicative competence and performance:

> The fundamental theoretical distinction that we have accepted between communicative competence and performance suggests that communicative testing must be devoted not only to what the learner knows about the second language and about how to use it (competence) but also to what extent the learner is able to actually demonstrate this knowledge in a meaningful communicative situation (performance). It has been emphasized quite frequently (e.g., by J. B. Carroll, 1961; Clark, 1972; Jones, 1977; Morrow, 1977; and in press, Oller, 1976) that pencil-and-paper tests now in

> use do not necessarily give valid indication of second language learners' skills in performing in actual communicative situations. Our theoretical framework suggests the boundaries and contents of communicative competence that are necessary and important for this type of performance. We think that it is important to empirically study the extent to which competence-oriented tests are valid indicators of learners' success in handling actual performance. (pp. 62-63)

Within the Canale and Swain framework, we assume that the student's communicative needs in genuine communicative situations should be specified with respect to the following:

- Grammatical competence--level of grammatical accuracy required; knowledge of lexical items and rules of morphology, syntax, sentence-grammar semantics, and phonology.

- Sociolinguistic competence--sociocultural rules of use and rules of discourse. This dimension of competence includes two sets of rules: (1) appropriateness of written utterances within a given sociocultural context (contextual factors such as topic, role of participant, setting, and norms of interaction), and (2) appropriate attitude or style conveyed by a particular grammatical form within a given sociocultural context.

- Strategic competence--grammatical and sociolinguistic strategies to be used when there is a breakdown in other competencies. These "coping strategies" (Swain, 1978) may be helpful to students at the beginning stages of second language learning, and the need for these competencies may change as a function of age and second language proficiency.

Writing Task Demands within Functional Contexts

The previous arguments stress the importance of more precisely identifying written communication performance that is demanded within functional contexts in order to arrive at a more accurate description of the kinds of writing tasks that are required of undergraduate and graduate second language students. Recently a number of researchers have attempted to identify some of these tasks, with a focus on improving instruction by more directly addressing students' communicative needs through instruction. Kroll (1979) surveyed a small number of students in freshman English courses for international students and in comparable courses for native speakers of English at the University of Southern California. Her results indicated that the past writing experiences and current writing needs of foreign and American students were predictable and similar, justifying the requirement that foreign students take the

English writing course. These foreign students had past experience with written English and also expected to use written English in the future. The writing task demands that Kroll identified resulted in her recommendation that students be provided opportunities to gain experience with modes of discourse they will be called upon to use; e.g., the personal essay was found to be less important than were business letters of persuasion, reports, and other writing tasks.

Surveying the academic needs for advanced ESL students, also at the University of Southern California, Ostler (1980), reported a clear distinction between the academic skills needed by graduate and undergraduate students; some of these skills were specific to major fields. Johns (1981) surveyed randomly selected faculty members from all departments at San Diego State University to determine which academic skills (reading, writing, speaking, listening) were most essential to the success of nonnative speakers of English in their university classes. All departments rated the receptive skills (reading and listening) as most important, suggesting that writing was a skill that should be taught as secondary to the receptive skills. Although most of the faculty agreed that general English was of more benefit to the students, the engineering faculty preferred special-purpose English over general English.

In contrast to the Johns result with engineering departments, Weaver (1982) found that "... faculty from many disciplines expressed similar values about writing..." (p. 12). Her approach involved studying the standards of writing competency used by faculty readers of writing samples. In general, these faculty members defined competency in terms of careful and logical organization of ideas, placing less emphasis on errors; the readers, however, tended to seek errors in poorly developed essays and to ignore errors in well-organized prose. Freedman (1979) used a similar approach to studying features of writing that are valued in compositions by comparing the holistic ratings of trained evaluators. College students' expository essays were rewritten to be stronger or weaker in four areas: content, organization, sentence structure, and mechanics. Ratings were most affected by content and organization, with smaller effects attributed to mechanics and sentence structure. However, Freedman obtained a significant interaction effect of mechanics and sentence structure with organization.

Field-Specific Writing Task Demands

Other researchers have focused their research concerned with academic writing task demands on field-specific requirements, with emphasis on English for special purposes (ESP). For example, West and Byrd (1982), surveyed twenty-five engineering faculty members at the University of Florida to identify the kinds of writing assigned to graduate students during one academic year (1979-80). They determined that examinations, quantitative problems, and reports (research and technical) were required most frequently; homework and papers, less frequently; and progress reports and proposals, least frequently. West (1982) also surveyed thirty-three engineering faculty members during the same year, asking them

to rate American and foreign students on eight writing dimensions. These faculty ranked all foreign graduate student writing dimensions lower than the same writing dimensions of American students, except for quality of content. Making pairwise comparisons on the eight dimensions of foreign student writing, West ordered the dimensions from weakest to strongest, as follows (p. 7):

1. Correctness of punctuation
2. Quality of sentence structure
3. Vocabulary size
4. Correctness of vocabulary usage
5. Quality of paragraph organization
6. Quality of overall paper organization
7. Quality of content
8. Overall writing ability

His results indicated that ESL graduate engineering students needed help with sentence-level writing skills.

In another study that typifies research in writing for academic purposes, Johns (1980) focused on the cohesive elements in written business discourse. Three types of written discourse were coded for cohesive elements. Johns was able to identify "constellations" as cohesive elements in the types of discourse but concluded that generalizations about cohesive features in broad classes of discourse could not be made. Lexical cohesion, for example, was the most common category in all three discourse types but varied considerably among them. In addition, Johns noted that other features of written discourse in English of business and economics (EBE) need to be distinguished. Hill and associates (1982), stressing the academic need for ESL students to learn to write experimental-research papers, have outlined an instructional approach that similarly aims at functional discourse. Pointing to the growing interest in ESP and in English for academic purposes (EAP), these researchers identified experimental-research papers as important to academic and professional success in the sciences and social sciences. Their instructional method explicates the rhetorical divisions of this type of paper, to enable ESL students to understand the principles of organization that are required.

As another example of the current orientation toward ESP, the Institute of Electrical and Electronic Engineers devoted an entire publication (the March, 12, 1982, IEEE Transactions on Professional Communication) to the subject of oral and written communication within the engineering profession (Landesman, 1982). Some of the articles reflect the views of functional communicative competency; e.g., one article, by J. Maynard,

explains how better procedural manuals can be written with the user and purpose in mind, with stress on being "function-oriented" rather than "software-oriented."

Contrastive Rhetoric

Another area of research that has explored the academic task demands on nonnative speakers of English has been termed "contrastive rhetoric." In this area, rhetorical patterns across cultures are identified and compared (Kaplan, 1972, 1976, 1977, 1982). The results of studies of contrastive rhetoric provide somewhat mixed evidence, some rejecting and others supporting the underlying assumption that the structural differences between the native language and the foreign language may interfere with the learning of the foreign language. We reviewed several representative papers in this area in order to take cultural differences into account.

Buckingham (1979) describes the operational levels of instruction in the teaching of composition, providing a description of skills at each level (I-III). Particularly at Level III, the "advanced" level, students should be prepared to write for a variety of communicative purposes, and sociolinguistic factors of language use in the academic setting should be emphasized. Buckingham circumscribes this level of communicative competence as a point in which students learn flexibility in reaching a specific audience to influence the "mental or physical behaviors in the reader" (p. 246). He distinguishes between the "conceptual paragraph" and the physical, or mechanical, aspects of paragraphing; ESL students need to recognize that the elements of a paragraph become united by a single theme through the logical sequencing of ideas. Significantly, nonnative speakers of English tend to organize their writing in the manner in which they organize writing in their first language, or in "un-English discourse" (p. 250). Thus cultural differences in logical development emerge. In English, for instance, we employ logical proof, culturally defined levels of formality, and cultural referents; in other languages, different syntactic choices and kinds of proof that are selected and valued by particular cultures are more predominant. Similarly, Dubin and Olshtain (1980) stress the differences in rhetorical patterns from one culture to another, patterns that influence cohesion and communicative purposes. They emphasize the importance of reading in English for ESL students of reading in English, a task that will expose them to the elements of English prose style that can be transferred to written composition.

Carpenter and Hunter (1981) studied approximately six hundred compositions of writers whose native languages were English, Semitic, Oriental, Romance, or Slavic. They noted significant differences between the continuation of expository paragraphs among writers with different native languages, influenced by the differences in patterns of logic imposed on the order of ideas in the paragraphs. These differences, they suggest, result from systematic differences in cultural styles of

thinking. In light of this evidence, Carpenter and Hunter recommend functional exercises to improve coherence in ESL writing: they emphasize the need for a functional approach because the understanding of communicative functions contributes to overall organization and coherence. Lindstrom (1981) also underscores the pedagogical implications of contrastive analysis, viewed from the standpoint of error gravity, or the extent to which errors influence communication. The judgments of educators and evaluators of writing tasks may be influenced by their idiosyncratic experiences and language backgrounds; the perception of errors varies with the situation. In academic writing, when errors substantially affect rhetorical patterns, logical and coherent comunication is affected as well.

According to Pearson (1981), the academic skills needed by ESL students at entry level in degree programs are further hampered by the students' problems with handling the concepts that underlie these skills. Many of these concepts reflect a culture-bound way of thinking that is unfamiliar and illogical to foreign students; they require considerable practice to be grasped, even by American students. Pearson recommends that the concepts that cut across the communication skills (reading, writing, listening, speaking) should be transmitted to students beginning in the lowest-level ESL classes. Concepts such as paraphrasing and summarizing, the general-specific dimension, and the relevance-irrelevance dimension should be presented to ESL students within a functional communicative approach, rather than through the traditional order of presentation of discrete basic skills. ESL specialists (Blenton, 1982; Taylor, 1982) suggest that the linguistic and cognitive approaches to academic learning situations need to be identified so that ESL teachers can more effectively help students meet communication expectations. In particular, Blenton notes that ESL students need to learn to communicate in modes that will meet future academic requirements. Unfortunately, ESL students who receive early instruction in personalized, narrative-based writing may not be aware that these narrative writing tasks cannot be applied to all academic writing; thus their writing fails to meet the academic expectations of impersonal, formal exposition.

In juxtaposition to the contrastive rhetoric position, some researchers suggest that implicit "universals" in scientific and technical languages, or common rhetorical or grammatical processes, may (or may not) exist. Selinker and associates (1978), for example, investigated rhetorical function shifts in English for science and technology (EST) discourse within a single paragraph. Their results indicated that EST students typically confuse rhetorical levels in the elementary stage of second language learning, and that rhetorical process development is only one form of EST paragraph development. They recommend research to investigate the rhetorical and grammatical processes of international scientific and technical languages, acknowledging the possibility that "...universal modes of thought and practice..." (Widdowson, 1974, p. 40) may be shared in EST. Alternatively, these possibly common processes may be explained by the fact that the scientific and rhetorical information of the world is coded in English.

Validation of the TOEFL Examination

The foregoing review of the literature, in addition to many other sources we consulted, enabled us to determine the more significant dimensions of the functional communicative demands in writing that might feasibly be imposed on entry-level nonnative speakers of English. These writing task demands can be described as general academic skill and assignment requirements, and as field-specific competencies, placed within the situational contexts that include academic settings and the culturally based expectations and perceptions of those who evaluate student writing. As Cronbach (1971) has noted, it is not really tests that are validated, but rather interpretations of data from tests used in specific contexts. Given the intended purpose of TOEFL as a test designed to measure the readiness of foreign students to respond to academic instruction in English, it would not be reasonable to validate TOEFL against all conceivable writing tasks but only against those that beginning undergraduate and graduate students are likely to encounter as part of their college and university courses.

Although there may be some danger in attempting to identify criteria for written expression in too many functional contexts, it also may be inadvisable to define the contexts too narrowly. Previous TOEFL validation studies (e.g., Pitcher & Ra, 1967; Echternacht, 1970) have used limited definitions of the desired criterion performance (e.g., a brief essay written on a general topic under a strict time limit and evaluated holistically). The brief essay written in class may be an important form of academic writing, but there are also longer term papers, lab reports, and so forth.

Furthermore, this earlier research correlated ratings of essays with subtests on the "old" TOEFL (a version with five subscores that was in use prior to 1976); since Pike's study (1979), and on the basis of his data, the writing ability and English structure subtests have been combined. Pike also concluded that the relationships found between essay ratings and the writing ability section of the test provided little support for replacing this section with a writing sample. Referring to the writing research of Godshalk and associates (1966), which indicated that the ratings of essays vary from topic to topic, Pike used four different topics in his study. However, the writing demands elicited by these topics might not serve as satisfactory criteria today, when viewed from the standpoint of obtaining valid samples of functional writing competency. Two of the four topics, using pictures as stimuli, each required a sequential description of events; these would tend to elicit writing skills that have been constrained by the topic and might not necessarily provide the student with sufficient opportunity to demonstrate writing ability. These topics, in providing a predetermined framework, might not tap the student's ability to organize ideas, a skill that is not measured by the discrete objective items on TOEFL; it thus follows that they would not be expected to supply information that would supplement the objective measures. The other two topics, the writing of a dialogue and the comparison of the advantages of city and country life, required the student to incorporate certain words in the writing sample, a constraint

that seems to create unreasonable demands; the topics also may have interposed cultural demands that prevented some students from demonstrating their writing skills adequately. Finally, the time limit allotted to each sample (ten minutes) may also have restricted the possibility of organizing cohesive discourse. Foreign students, in particular, should be allowed enough time to process their ideas from one language to another (Lay, 1982). The Pike study provided sound data to support the construct validity of TOEFL. Since that time, we have acquired additional knowledge about the design of writing samples, knowledge that should enable us to structure topics that will elicit performance of the kinds of skills they are likely to measure. Moreover, since Pike's study involved the relationships between ratings of writing samples and the old form of TOEFL, these relationships should be reexamined.

The primary objective of this project was to identify and describe operationally the expectations of writing competence required of nonnative speakers at the beginning of their educational experiences in institutions of higher education in the United States and Canada. The information we gathered took into account the various factors that should be considered in defining communicative competence in writing--the functional task demands for which students are expected to be prepared, as well as the perceptions, sometimes culturally influenced, of those who evaluate them. The informal interviews and literature review provided the basis for the design of a survey instrument that incorporated the full range of expectations of writing competence. The writing task demands, features of writing tasks, and types of writing sample topics were expressed in terminology that would communicate clearly to individuals in various disciplines. Subsequently, a representative sample of departments within institutions responded to the questionnaire, in order to provide a basis for describing the domain of writing competencies expected of entering native and nonnative students. This report presents a summary of the results of the investigation. With this data base, we will be able to design more valid direct measures of writing ability that could be related to scores on TOEFL in the future.

Section II. Method

This section describes the questionnaire development strategy, questionnaire content, development of topic types, sampling plan, and data collection strategies.

Questionnaire Development Strategy

Three primary sources were used to develop the questionnaire. First, the literature review (see preceding section) suggested several general areas of concern that should be addressed and indicated specific questions that should be asked. Second, the study's advisory committee* met twice and made a number of useful suggestions. Third, a series of interviews was conducted with faculty at nearby institutions.

Interviews. The interview portion of the study was conducted during June and July 1982. Interviews were held with about thirty faculty members from the following universities: Columbia University, the University of Delaware, New York University, the University of Pennsylvania, Princeton University, and Rutgers University. These institutions were selected because they had substantial numbers of foreign students and were within easy travel distance from the ETS Princeton office. Most interviewees were from engineering departments, business departments, or English language institutes. The interviews were relatively unstructured but focused on four major points: (1) a description of the kinds of writing tasks assigned to first-year students, (2) a description of the standards used to evaluate student writing, (3) identification of the kinds of writing problems that appear to be especially severe for foreign students, and (4) a determination of the kind of writing task that would be most useful on an admissions test.

Because interview responses were used primarily to determine important issues and appropriate questions for the questionnaire, they will not be discussed in detail here. Instead, they will be discussed when appropriate to provide clarification of the responses to the survey. A few general comments, however, may be useful.

Before beginning the interviews we had anticipated some demand for subject-specific writing exercises (i.e., exercises that required expertise in a particular subject-matter area). We found no support for the inclusion of such exercises on an admissions test. There was near universal agreement among faculty members that subject-matter knowledge could be assessed with other testing formats, and that subject-matter-

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*Advisory committee members were Louis Arena (University of Delaware), Hunter Breland (ETS), Roberta Camp (College Board, ETS), Diane Larsen-Freeman (School for International Training, Brattleboro, Vt.), Charles Stansfield (TOEFL, ETS), Barbara Suomi (TOEFL, ETS), and Barry Taylor (University of Pennsylvania).

specific writing skills (e.g., formatting lab reports or preparing business case studies) would be part of the course of instruction rather than prerequisite skills. Nevertheless, certain kinds of writing were seen as more important in some subject-matter areas than others. (For example, many business faculty were particularly concerned with the ability to write persuasively.) Therefore, the questionnaire did not attempt to deal with writing exercises for testing specific subject-matter knowledge; it did include sections on the kinds of writing that might be of varying importance in different academic disciplines.

Because the questionnaire focused on problems of students in their first year of study, problems in the writing of theses were not addressed. However, it is worth noting that a number of engineering faculty indicated that the thesis presents a major hurdle even though students can successfully complete their first year doing little or no writing. Faculty members from two institutions stated that many foreign students (and some native-speaking students) essentially have their dissertations written for them; although the students provide the conceptual framework, the actual writing is done by someone else.

Questionnaire content. The questionnaire contained six major sections. Section I asked for some simple descriptive background information about the department, Section II surveyed writing-task demands, Section III investigated criteria used to evaluate written assignments, Section IV obtained data on writing problems of native and nonnative students, Section V solicited information on the use or potential use of a writing sample in the admissions process, and Section VI asked for acceptability ratings on ten specific topic types. A copy of the questionnaire for graduate departments is provided in Appendix A. The same questionnaire was sent to undergraduate English departments, except that the word "undergraduate" was substituted for the word "graduate" throughout.

Most items are self-explanatory and require no further elaboration. Note, however, that the "criteria" categories in Section III and the "problem" categories in Section IV are identical. Some of the general features listed were adapted from West (1982), who successfully used similar dimensions when he conducted a survey of engineering college faculty members at the University of Florida. These categories appear to provide an adequate description of the general features of writing while remaining free of linguistic jargon that might not be understood by faculty members who are not writing specialists. During the course of our interviews, in fact, we found that faculty members in disciplines other than English understood and were comfortable with the terminology and classifications used in the questionnaire.

The questionnaire instructions asked respondents to make judgments in the context of experiences and expectations for the first year of education in their institutions, graduate or undergraduate. This instruction was based on the premise that the primary concern at the time of admission is with the degree of preparation of the candidate, at entry level, that will enable him or her to succeed in a given educational program. Beyond

the first year, undergraduate and graduate coursework is designed to help students develop skills that are more specifically oriented toward their chosen fields; in the area of writing, the different programs may emphasize skills in discourse modes and content areas that are more specialized. Expecially in undergraduate programs, writing-task demands vary considerably as students select and change their major courses of study. Respondents also were asked to attempt to reply to the questionnaire from the perspectives of their specific departments, rather than from their perspectives as individuals within departments.

Development of topic types. The topic types presented on pages 8-16 of the questionnaire emerged from in-depth discussions with advisory committee members, research and program staff members at ETS, and faculty and administrators at local institutions. This approach of using topic types was selected in preference to asking respondents to rate various desired attributes of writing sample tasks. Appearing on a list, certain abstract features might be more appealing than others, but we assumed that, when confronted with concrete examples of actual tasks that might be required of candidates, respondents would be able to appraise the task demands of a particular writing sample more realistically. In reacting to the topic types, respondents were instructed to respond to the writing communication demands and the skills likely to be elicited by a type of task, rather than to the specific wording or subject matter of an example. The topic types were structured to demonstrate how a stimulus for a writing sample might elicit particular writing skills. Thus it was necessary to focus the judgments of respondents on the value of the information that might be obtained from a type of sample rather than on details about the content or prose of the stimulus. (Eventually, as writing samples are designed for research or implementation purposes, these details about topic choices will need to be carefully considered.)

Ten different topic types were selected to provide a concrete and thorough overview of the possible task demands that a writing sample might elicit. Two specific examples were provided for each topic type. As the examples were prepared, we attempted to eliminate as much cultural bias as possible by using content that might be construed as "universal" rather than as oriented to Western culture, but with the recognition that certain conditions of our culture must be faced by international students who attend our institutions. The examples also were phrased so that they would specify clearly the task that was required of the student writing the sample.*

The topic types range from the more basic modes of exposition to somewhat more complex writing task demands. They also vary in terms of the concrete nature of the requirements; the early types clearly require straightforward description and no more, whereas the last two types are somewhat more open-ended, allowing the writer to demonstrate a variety

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*Roberta Camp, a member of the ETS professional staff who has considerable experience in designing writing sample stimuli, assisted us in preparing the topic type examples.

of possible writing skills to the extent that he or she can do so. All the topic types attempt to elicit some portion or portions of the kinds of writing skills that might be expected of students at entry level, or in early training in their academic fields. The following paragraphs briefly describe the assumptions about writing task demands that underlay the selection of the topic types (see Appendix A, pages 8-16, for actual topics).

Type A. Personal Essay

In some respects, this type of stimulus presents a simple writing task, in that candidates might be more comfortable writing from their own experiences, and can produce "good" samples of writing skills. The skills that can be elicited, however, are possibly too basic, and may not serve as good indicators of the abilities required by academic writing. The personal essay employs a subjective component, whereas objectivity tends to be emphasized in many of the academic disciplines. The comments obtained during interviews and on the questionnaires also point out that many international candidates may have memorized personal statements, thus defeating the purposes of an extemporaneous writing sample. Some of these personal essays may be redundant with the personal statements obtained in the admissions process, as well. Furthermore, the personal essay may present a disadvantage to nonnative speakers of English who are intimidated by the prospect of honest self-revelation to readers of their samples, fearing retribution from these in their own countries or in their chosen U.S. or Canadian institution. Finally, candidates from certain cultures may be unable to write personal essays because this form of exposition is either not sanctioned in their societies or is not a form with which they have experience.

Type B. Sequential or Chronological Description

As with the personal essay, this type of task requires a relatively simple form of written production. The writer needs only to present a picture with words, and is not required to rely upon other modes of discourse to meet the task requirements. This kind of description eliminates the personal element, in that the student need not reveal any personal insights or biases that potentially pose a threat from the evaluator of the composition. The particular topic that is assigned may create a problem, however, because the international student may lack sufficient experience to draw upon. This form of descriptive task may reflect important academic or field-related skills, but may elicit skills that are so elementary that they require little organization or analysis because the topic itself supplies the natural organizing elements.

Type C. Spatial or Functional Description

This kind of topic presents the advantages and disadvantages of Type B tasks, yet may elicit more organizational skills (such as relating the parts to the whole) than does the sequential or chronological

description. Again, the topics may pose "universal" situations, but they may also be trite, lacking the degree of depth that requires thoughtful analysis and coherence. However, this topic type has face validity, in that academic or professional writing frequently calls for this kind of writing.

Type D. Compare and Contrast

On a slightly more complex level of discourse, topics such as these require exposition as well as description. Since the student is not required to take a position, the possibility of perceived threat presented by revealing personal opinions is eliminated. As with topic types B and C, this type may reflect a kind of writing task that may be required of students, but it represents only one fragment of the several writing skills that characterize academic or professional writing.

Type E. Compare and Contrast Plus Take a Position

Although incorporating the positive elements of Type D topics, the added requirement of taking a position may penalize certain cultural groups. In many fields, however, argumentation blended with description and exposition is the predominant mode of discourse. In business, psychology, and civil engineering, for example, the student must go beyond a statement of facts to support the validity of one or more propositions. The writing of this kind of composition may elicit the student's skills in thinking about and organizing facts and ideas and may be considered a "better" representation of what he or she can do with a subject. With this type of sample, however, the student may not perform as effectively, especially when presented with a more general topic as opposed to a more familiar topic in the field.

Type F. Extrapolation

This type of topic calls for a blend of the several modes of discourse, as in Type E, in addition to an element of "creativity" or imagination. Because some degree of personal experience or judgment needs to be injected beyond basic description and exposition, this kind of task may introduce cultural bias. The demands of the task, though, represent a facet of the kinds of thinking and coherence in writing that parallel academic and job-related assignments. One limitation of the extrapolation task is the amount of thought and organization required in the prewriting stage; time limits may restrict adequate development of a topic and elicit a sample that is not truly representative of a student's skills.

Type G. Argumentation with Audience Designation

This type of topic elicits skills similar to those elicited by the Compare and Contrast Plus Take a Position task (Type E), yet it introduces the valuable constraint of addressing the composition

to the appropriate audience. Ideally, every writing sample stimulus should designate an audience in order to communicate more precisely the purpose of the composition, hence the skills to be demonstrated. In reality, however, many native and nonnative speakers of English have difficulty with preparing a piece that is directed to a specific audience. Instead, most undergraduate and beginning graduate students write for an audience of one, the instructor. At the graduate level, training in certain fields does involve the orientation of students toward audiences with whom they are likely to interact. However, graduate instructors report that even professionals in their fields tend to deal inadequately with audience designation.

Type H. Describe and Interpret a Graph, Chart, etc.

This task is designed to elicit the skills of description and exposition. In addition, the student is asked to "interpret" the information that is presented pictorially. The task of interpretation presents an open-ended instruction, in that student responses might range from contributing simplistic, mechanically organized lists or impressions to demonstrating some of the skills of well-organized argumentation. Therefore, this instruction may elicit writing samples that reflect thinking as well; however, the student who more strictly follows the instruction may not exhibit the thinking and cohesion of ideas that may be within his or her repertoire of skills. The demands of this task also may penalize students who lack graph-reading or spatial ability, or for whom an "interpretation" may reflect a non-Western, cultural difference (although these biases could be largely prevented with carefully designed stimuli and/or scoring systems). Certainly, many fields require at least an elementary level of graph- or chart-reading ability that can be approximated with well-chosen topics. This type of topic reflects another aspect of the kinds of academic and professional skills that are important, but it does not necessarily present a complete measure of available skills.

Type I. Summarize a Passage

Many disciplines require the combination of abilities to read, comprehend, extract main ideas, and summarize in one's own words. On the other hand, international students may be penalized particularly by the content and vocabulary and by an inability to comprehend the full and implied meaning in the passage. As a result, the writing samples obtained with this task might consist of lists or paraphrases that mimic the thinking and organization of the author of the passage rather than reflect those of the student. The determination of a passage for this kind of writing stimulus requires the careful selection of an optimal reading level, "universality" of the subject matter and vocabulary, a well-written and clearly organized piece of prose, and precise instructions that communicate the task demands.

Type J. Summarize a Passage and Analyze/Assess the Point of View

Going beyond the skills elicited by Type I topics, this type of topic increases the demands on the writer by including an analysis/assessment component. Along with the drawbacks of Type I topics, this additional skill presents a more open-ended challenge--the student may demonstrate the skills at his or her command in going beyond basic summarization. It allows the writer to demonstrate organization and thinking with the option to compare and contrast, to take a position, or to extrapolate beyond the given information. Time limits impose an unreasonable restriction, however, since the task requires sufficient time to read and digest and to think and organize in the prewriting stage. Thus the task may convey expectations that are too complex to be achieved within a brief time interval.

Sampling Plan

To obtain a representative sample, we selected institutions that met the following criteria:

1. Institutions with enrollments of foreign students* exceeding 1,000

2. In the United States, four geographic areas with the highest proportions of foreign students enrolled (assuming that this geographic distribution would provide a reasonable distribution of students from different foreign countries)

3. A distribution of public/private institutions approximately proportional to the public/private distribution of schools in the United States that foreign students attend (i.e., achieving a balance between private schools typical of the Northeast with public schools typical of the Midwest)

4. In Canada, institutions with high proportions of foreign students enrolled

The institutions were selected on the basis of these criteria from lists compiled in Open Doors: 1980/81 (Boyan, 1981) and further supported by TOEFL program statistics. (See Appendix B for enrollment data for the institutions that participated.) All of the institutions that were chosen had enrollments of foreign students exceeding 1,000, except for one school in the Pacific region with an enrollment of 982. The regions in which most foreign students were enrolled were the Northeast, Midwest, Pacific,

*Data from Open Doors: 1980/81 were used as a basis for selecting the sample; since that text uses the term "foreign students," the term is used in this section describing the sampling plan. Hereafter, our text uses the term "nonnative speakers of English" to more accurately identify the focus of our study.

and South/Southwest in the United States. Although Open Doors does not include Canada, we also decided to include three Canadian institutions that enrolled large numbers of foreign students. Of the seventy United States institutions reporting enrollments of over one thousand foreign students in 1980/81, we decided to obtain a sample of at least thirty, in addition to the Canadian institutions. Lists of eight to ten institutions in each of the four regions of the United States were prepared, with the expectation that not all of the institutions would be willing or able to participate.

Because it would not be practical to sample from every academic discipline that enrolls foreign students, we selected seven disciplines ("departments") as the fields of study in which most foreign students tend to enroll and that also represent contrasting areas of education. Since TOEFL contributes to decision making at the time of admission, we decided to focus on the skills of students at entry level and during their first year of education as undergraduate or graduate students. The interviews suggested that most writing by first-year undergraduate students was done in English courses; thus the undergraduate English departments were selected to provide data representing initial undergraduate experiences. Graduate departments with heavy concentrations of foreign students were selected from data provided in Open Doors and from recent Graduate Record Examinations background questionnaire responses (Wilson, 1982). At the graduate level, the following six departments were chosen: electrical engineering, civil engineering, computer science, chemistry, master of business administration (MBA) programs, and psychology. Although graduate departments in the social sciences typically report relatively low enrollments of foreign students, this area was included because it was felt that results for the social sciences might be markedly different from the results in business, "hard" science, and engineering. Psychology, the social science department with the highest nonnative enrollment, was selected.

Data Collection Strategies

To ensure a high rate of return, we telephoned faculty members or administrators at all institutions on our list to obtain the assistance of one individual at each institution who would distribute and collect the questionnaires for each of the seven disciplines. These potential "coordinators" were identified through the NAFSA Directory (1980). Direct telephone contacts with these individuals, or with individuals who had replaced them in their positions, enabled us to make arrangements with coordinators who were willing to participate. Using this approach, we also were assured that the coordinators would select faculty members, one in each of the seven departments, who were most familiar with the academic demands of their departments (institutions, in the case of undergraduate English) on native and nonnative speakers of English. In addition, these contacts enabled us to determine whether all seven departments existed at each school, so that we might mail the appropriate number of questionnaires; if the coordinators were in doubt about specific departments, more questionnaires were mailed than might be needed.

As soon as a coordinator at each institution was confirmed (listed in Appendix C), a package of materials was mailed. Each package contained the following: a letter containing information about the study and procedures for the coordinator, a sample of the undergraduate and graduate questionnaires for the coordinator, letters explaining the study for each faculty member, questionnaires and honorarium forms for each faculty member, and a postage prepaid mailing envelope for returning the materials. (The letters appear in Appendix D.) For the institutions that agreed to participate early in our telephone conversations, one month's time was allowed for the completion and return of the questionnaires.

Section III. Results

Results are presented in the same order in which the questions appear in the questionnaire. The reader should refer to the exact phrasing and format for each question on the questionnaire before reading the results for that item.

Sample Description

Usable questionnaires were received from a total of 190 academic departments from 34 universities, which represents 82% of the 231 questionnaires sent to 36 schools. A total of 213 questionnaires (92% return) was actually returned by local coordinators, but some were returned blank because the faculty from departments with very low foreign student enrollments felt that they had insufficient information to complete the questionnaire. Four questionnaires from departments at Canadian universities were dropped because the "nonnatives" in those departments were bilingual French Canadians who did not fit the typical nonnative pattern. Only two institutions (both private Eastern universities) failed to return any questionnaires. Some universities did not have academic departments in all of the seven areas, and a few departments did not return questionnaires even though other departments at their universities did. Thus, the Ns vary slightly from department to department.

Table 1 provides information on the number of questionnaires received from each academic discipline and summarizes the background information from page 1 of the questionnaire. The percentage of nonnative students in a department ranges from a low of 6% in psychology to a high of about 50% in both engineering fields. Note that graduate management departments are typically much larger than other graduate departments; thus, the mean number of nonnative students in management programs is comparable to the number in engineering programs even though the percentage figure is much higher in engineering. The plurality of the departments in each academic discipline reported that most nonnative students came from South and East Asia.

Writing Task Demands

Writing task demands were assessed in two ways. First, faculty in each department were asked to indicate the number of times per semester that each of a variety of tasks would be assigned to first-year students in all of their courses (see page 2 of the questionnaire in Appendix A). Second, faculty were asked to rate, on a scale of one to five, a variety of writing activities in terms of importance (see page 3 of the questionnaire). Results of the section concerned with frequency of assignment (questionnaire page 2) are summarized in Table 2. In this table, and in subsequent tables, the percentage of departments rather than number of departments was used to facilitate comparisons across academic disciplines that were represented by differing numbers of departments. Percentages

TABLE 1

SAMPLE DESCRIPTION

	DISCIPLINES[a]							
	UGE[b]	MBA	CE	EE	P	C	CS	Total
N	32	29	26	25	24	29	25	190
Mean number of students in department who are not native speakers of English	1083	66	61	64	7	25	56	165
Mean percent nonnative	15	13	51	48	6	30	38	30
Number of departments[c] reporting most nonnative students come from:								
Africa	2	1	1	1	1	1	0	7
Canada	0	0	0	0	0	1	0	1
Europe	0	14	0	0	3	0	1	8
Latin America	12	14	8	0	5	2	1	18
Middle East	12	0	13	6	7	3	3	44
South and East Asia	18	22	18	20	10	25	21	134

[a] UGE = undergraduate English, MBA = graduate management, CE = civil engineering, EE = electrical engineering, P = psychology, C = chemistry, CS = computer science

[b] Numbers and percentages reported by undergraduate English departments refer to all undergraduates in the university, not just English majors.

[c] Despite instructions to check only one geographical area, some respondents checked more than one; therefore the total number checked is greater than the total number of departments.

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TABLE 2

FREQUENCY OF WRITTEN ASSIGNMENTS OF DIFFERENT TYPES

Writing Tasks	Frequency of Assignments per Semester	DISCIPLINES[a] UGE	MBA	CE	EE	P	C	CS	TOTAL
1. Lab Report/ experiment	0	75[b]	69	4	20	12	34	20	36
	1-2	19	14	54	32	67	28	16	32
	3-6	6	7	31	32	12	21	40	21
	7+	0	0	12	12	0	17	20	8
2. Brief summary of article	0	25	31	27	36	21	41	12	28
	1-2	38	24	46	48	25	28	60	38
	3-6	25	24	23	8	38	17	16	22
	7+	9	17	4	4	8	10	4	8
3. Brief research papers	0	19	14	15	28	8	41	24	22
	1-2	59	24	54	64	50	45	56	50
	3-6	16	48	27	4	29	7	16	21
	7+	3	10	0	0	0	3	0	3
4. Longer research papers	0	16	14	19	60	8	69	44	33
	1-2	81	52	62	32	62	17	44	51
	3-6	3	8	0	0	25	3	4	11
	7+	0	0	0	0	0	0	0	0
5. Creative writing	0	62	93	100	96	92	97	88	89
	1-2	25	3	0	0	0	0	0	5
	3-6	6	0	0	0	0	0	0	1
	7+	3	0	0	0	0	0	0	1
6. Expository/ critical writing	0	0	48	81	92	67	79	64	59
	1-2	3	24	12	4	17	14	12	12
	3-6	31	7	8	0	8	0	8	9
	7+	66	14	0	0	0	0	8	14
7. Exams with essay	0	3	0	15	56	4	0	8	12
	1-2	53	17	42	28	29	45	44	37
	3-6	31	41	31	8	38	34	40	32
	7+	12	38	12	4	25	21	8	17
8. Group writing	0	62	3	69	80	71	90	60	62
	1-2	25	52	23	16	17	3	28	24
	3-6	6	34	4	0	0	0	4	7
	7+	3	3	0	0	0	0	0	1
9. Case studies	0	84	3	54	76	38	90	56	58
	1-2	3	17	31	12	38	0	28	17
	3-6	3	41	15	4	21	0	4	13
	7+	0	34	0	0	0	0	0	5

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

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sometimes fail to add to 100% because of omitted responses. Omits appeared to be random, with never more than three omits on any item for any of the academic disciplines.

Frequency of assignments. Lab reports or descriptions of experiments appear to be assigned to first-year students at least once per semester in the graduate departments sampled, except for graduate management. However, lab reports for first-year undergraduate students are apparently relatively rare. Writing brief summaries of articles appears to cut across academic departments, but it is far from a universal demand. At least 25% of the departments in all fields except psychology and computer science indicated that their students are never given brief article summary assignments. Brief research papers (five pages or less) appear to be relatively common across fields, but longer research papers are required in fewer than half of the electrical engineering and chemistry departments.

Despite the emphasis on creative writing (fiction, poetry, drama) in many elementary and secondary schools, this kind of writing is apparently relatively rare at the university level. Sixty-two percent of the English departments reported that undergraduates receive no creative writing assignments in their first year. At the opposite extreme, for undergraduates, expository or critical writing assignments are reportedly quite frequent. Ninety-seven percent of the undergraduate programs (31 of the 32 in the sample) reported at least three expository or critical writing assignments per semester. However, this kind of writing is relatively rare in most of the graduate departments. Business management was the only graduate field in which fewer than half of the departments reported no assignments in expository writing. Exams with essay questions appear to be fairly common on both the undergraduate and graduate levels. An exception is electrical engineering, where over half of the departments reported using no essay exams. This is consistent with findings from the interviews.

The electrical engineering faculty members interviewed reported that most of their exams are problem sets that could be answered with strings of mathematical symbols. The interviews with civil engineering faculty indicated that they use some purely mathematical problems on exams, but that two or three questions requiring essay responses are usually included as well (e.g., "Describe the advantages and disadvantages of highway route A versus route B"). The questionnaire responses reinforce this distinction between civil and electrical engineering.

Group writing exercises are common in graduate management programs, but are relatively rare elsewhere. The interviews indicated that in some MBA programs practically all writing assignments are done on a group basis. Students with relatively poor writing skills but good skills in other areas may be able to get by in such programs if they are fortunate enough to be assigned to groups that include at least one good writer.

Case studies are very common academic tasks in MBA programs, with 75% of the departments reporting that at least three case studies are assigned

per semester. Case studies are reportedly assigned at least once per semester in 59% of the psychology programs. The questionnaire did not differentiate between clinical and experimental psychology programs, but there would undoubtedly be important differences between the two.

Importance of writing skill to success. During the interviews, several engineering faculty members said that they put very little emphasis on writing in the graduate program and that writing skills are not important for success in graduate school. However, these same professors indicated that the most successful practicing engineers are those who write well. To determine the generality of these beliefs about the importance of writing skill to success in school and after school, two items were included on the questionnaire (items 1 and 2 on page 3). The results are summarized in Table 3. Except for psychology and undergraduate English, writing was consistently rated as more important to success after graduation than to success in school. As suggested by the interviews, the difference was particularly striking in engineering. In both civil and electrical engineering, only about 20% of the departments rated the importance of writing to success in school in one of the two highest categories (4 and 5), but over 60% of the departments in both areas rated writing as a 4 or 5 in importance after graduation.

Importance ratings for writing skills. Seven writing skills were rated (1-5) for degree of importance (see questionnaire, page 3). These ratings are presented in Table 4. Results generally confirmed a priori expectations. For example, describing an apparatus is relatively unimportant in MBA departments and relatively important for engineering and computer science. Describing a procedure is apparently especially important for computer science majors. Arguing for a particular position is very important for undergraduates and graduate business majors but is relatively unimportant for students in engineering, chemistry, and computer science. Organizing arguments from several sources appears to be critical for undergraduates, graduate business students, and psychology majors. Analyzing or criticizing ideas, excerpts, or passages was rated as a particularly important skill for undergraduates, graduate business students, and psychology majors.

Criteria Used to Evaluate Written Assignments

Importance ratings of various evaluation criteria for written assignments (from page 4 of the questionnaire) are summarized in Table 5. These ratings reflect "the extent to which grades for written assignments in your courses for beginning graduate (undergraduate) students are influenced by each feature." In general, grammatical and sentence-level features (e.g., punctuation, spelling, sentence structure) were rated as less important than more global essay characteristics (e.g., paragraph organization, paper organization, quality of content, development of ideas). However, the undergraduate English departments rated sentence structure as an important grading criterion (94% rated it 4 or 5). Appropriateness to audience is another factor that is important to undergraduate English departments (85% rated 4's or 5's) and graduate

TABLE 3

IMPORTANCE OF WRITING SKILL TO SUCCESS

	Importance Rating	DISCIPLINES[a] UGE	MBA	CE	EE	P	C	CS	TOTAL
Importance to success in school	low 1	0[b]	0	8	12	0	3	8	4
	2	0	3	19	32	4	21	12	13
	3	0	28	54	32	25	45	52	33
	4	0	45	15	12	42	21	[illegible]	23
	high 5	100	24	4	8	29	10	0	27
Importance to success after graduation	low 1	0	0	4	0	0	0	4	2
	2	0	0	4	4	0	0	8	20
	3	0	7	19	28	25	31	36	35
	4	3	48	50	44	25	34	48	40
	high 5	91	45	23	20	50	34	4	2

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

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TABLE 4

IMPORTANCE OF VARIOUS WRITING SKILLS

Writing Skill	Importance rating		DISCIPLINES[a] UGE	MEA	CE	EE	P	C	CS	Total
3. Describe object or apparatus	low	1	22[b]	55	12	16	12	21	28	24
		2	16	24	19	16	25	7	8	16
		3	22	7	31	16	29	38	16	23
		4	16	14	35	36	17	21	36	24
	high	5	25	0	4	12	17	14	12	12
4. Describe a procedure	low	1	12	10	8	8	0	14	0	8
		2	16	31	8	8	8	14	12	14
		3	16	21	27	16	21	24	8	19
		4	25	21	38	40	38	14	36	29
	high	5	31	17	19	24	33	34	44	29
5. Argue for a position	low	1	0	0	42	28	8	21	28	17
		2	3	3	27	36	8	31	16	17
		3	3	7	15	16	29	28	36	18
		4	25	38	12	12	38	17	16	23
	high	5	69	52	4	4	17	3	4	24
6. Organize arguments from several sources	low	1	0	0	19	20	0	10	28	11
		2	3	3	19	20	0	28	12	12
		3	12	3	12	20	8	17	24	14
		4	25	45	42	16	58	24	32	34
	high	5	59	48	8	20	33	21	4	29
7. Summarize facts from one source	low	1	12	0	4	8	0	7	8	6
		2	9	14	4	12	4	28	16	13
		3	34	41	42	20	29	34	36	34
		4	6	31	38	36	38	21	36	28
	high	5	38	14	12	20	29	10	4	18
8. Analyze/ criticize	low	1	0	7	27	32	0	10	20	13
		2	0	14	19	24	4	28	20	15
		3	16	10	23	16	21	28	24	19
		4	22	45	27	4	46	14	24	26
	high	5	62	24	4	16	29	21	12	25
9. Express self creatively	low	1	6	21	38	24	33	31	44	27
		2	31	17	19	36	21	24	24	25
		3	28	38	19	8	21	17	12	21
		4	22	21	4	8	17	19	16	15
	high	5	12	3	12	16	8	14	4	10

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

TABLE 5

IMPORTANCE OF SELECTED FEATURES OF WRITING

Effect of Feature on grades	Degree of importance		DISCIPLINES[a] UGE	MBA	CE	EE	P	C	CS	Tota
1. Punctuation/ spelling	low	1	3[b]	3	19	36	7	45	36	22
		2	12	28	23	20	50	24	28	26
		3	25	24	46	20	29	21	16	26
		4	38	24	4	24	4	7	16	17
	high	5	22	17	8	0	0	3	4	8
2. Sentence structure	low	1	0	3	15	20	8	31	20	14
		2	0	10	12	24	17	24	20	15
		3	6	21	58	44	38	28	40	32
		4	38	34	15	12	29	10	20	23
	high	5	56	28	0	0	8	3	0	15
3. Vocabulary size	low	1	6	21	27	36	0	28	28	21
		2	31	14	42	40	46	31	32	33
		3	31	45	27	16	38	34	32	32
		4	25	14	4	8	17	7	8	12
	high	5	6	3	0	0	0	0	0	2
4. Vocabulary usage	low	1	0	7	12	16	0	10	4	7
		2	0	3	27	20	8	17	28	14
		3	16	14	35	28	33	28	24	25
		4	47	55	23	28	50	28	28	37
	high	5	38	17	4	8	8	17	16	16
5. Paragraph organization	low	1	0	0	19	12	0	17	16	9
		2	0	3	12	28	17	34	32	17
		3	0	41	46	32	46	34	32	32
		4	38	31	23	24	29	7	16	24
	high	5	62	21	0	0	8	7	4	16
6. Paper organization	low	1	0	0	4	4	0	10	0	3
		2	0	0	0	8	4	17	20	7
		3	0	10	42	32	12	38	36	24
		4	19	24	38	52	38	24	28	31
	high	5	81	62	15	4	46	10	16	35
7. Quality of content	low	1	0	0	4	4	0	0	4	2
		2	0	0	0	0	0	3	0	1
		3	9	0	12	16	4	10	16	9
		4	47	21	31	40	21	17	20	28
	high	5	44	76	54	40	75	69	60	59

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

TABLE 5 continued

IMPORTANCE OF SELECTED FEATURES OF WRITING

Effect of feature on grades	Degree of importance		DISCIPLINES[a] UGE	MBA	CE	EE	P	C	CS	TOTAL
8. Development of ideas	low	1	0	0	8	4	0	0	4	2
		2	0	3	8	8	0	3	8	4
		3	3	3	19	24	4	28	24	15
		4	28	38	38	40	21	24	32	32
	high	5	69	52	27	24	75	45	32	47
9. Overall writing	low	1	0	0	8	4	0	17	8	5
		2	0	0	8	16	8	17	24	10
		3	3	28	50	48	38	52	56	38
		4	34	34	27	32	38	10	8	26
	high	5	59	31	8	0	17	3	0	18
10. Addresses topic	low	1	0	3	0	4	0	0	0	1
		2	0	0	4	8	0	7	0	3
		3	6	7	19	24	8	17	36	16
		4	31	24	50	40	38	28	32	34
	high	5	62	62	27	24	54	48	32	45
11. Appropriate to audience	low	1	0	0	15	8	0	24	24	10
		2	0	10	35	24	17	31	28	20
		3	16	21	31	40	38	17	12	24
		4	38	34	12	20	42	14	36	28
	high	5	47	31	8	8	4	14	0	17
12. Assignment requirements	low	1	0	0	0	0	0	3	0	1
		2	3	3	4	0	0	3	0	2
		3	12	7	12	24	12	21	12	14
		4	41	31	35	24	38	17	36	32
	high	5	44	55	50	52	50	55	52	51

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

management programs (65% rated 4's or 5's), but much less important in engineering (20% and 28% rated 4's or 5's in civil and electrical engineering, respectively). A graph of the mean rating on each feature for each department clearly illustrates the trends discussed above. In Figure 1, the means for most academic disciplines fall within the rectangular box above each of the rating categories. Means for disciplines falling outside this range are plotted separately. The figure clearly shows the generally higher ratings for the global characteristics as well as the extent to which ratings for undergraduate English departments and MBA programs were atypical.

Question 15 on page 4 of the questionnaire asked which of the features was most important and which was least important. The results are summarized in Tables 6 and 7. Consistent with the results presented in Table 5 and Figure 1, most departments rated one of the discourse-level characteristics as most important and one of the word or sentence-level characteristics as least important. Particularly striking is the number of departments that thought that size of vocabulary is least important; more departments selected this choice than any other option. This result should be of interest to students (both native and nonnative) who use thesauruses to sprinkle obscure words through their writing.

Table 8 indicates that most departments reportedly use the same standards to evaluate the writing of native and nonnative speakers of English (questionnaire page 4, item 15). However, in each field except psychology there was still a significant minority of departments using different standards. Departments answering "No" to item 16* (i.e., departments that use different standards to evaluate the writing of nonnative students) were asked to indicate which writing features they evaluate more leniently for nonnatives. These results are presented in Table 9 (page 35). Most of the features evaluated more leniently were at the level of paragraph organization or at a more molecular level (e.g., punctuation/ spelling, sentence structure, vocabulary size, vocabulary usage), but overall writing ability is evaluated leniently by many departments, as well. Even among those departments that use different standards for nonnatives, the areas of paper organization, quality of content, development of ideas, adequately addressing the topic, and meeting assignment requirements are generally evaluated with the same standards for natives and nonnatives. Note, however, that appropriateness to audience is one discourse-level characteristic that is frequently evaluated more leniently for nonnatives.

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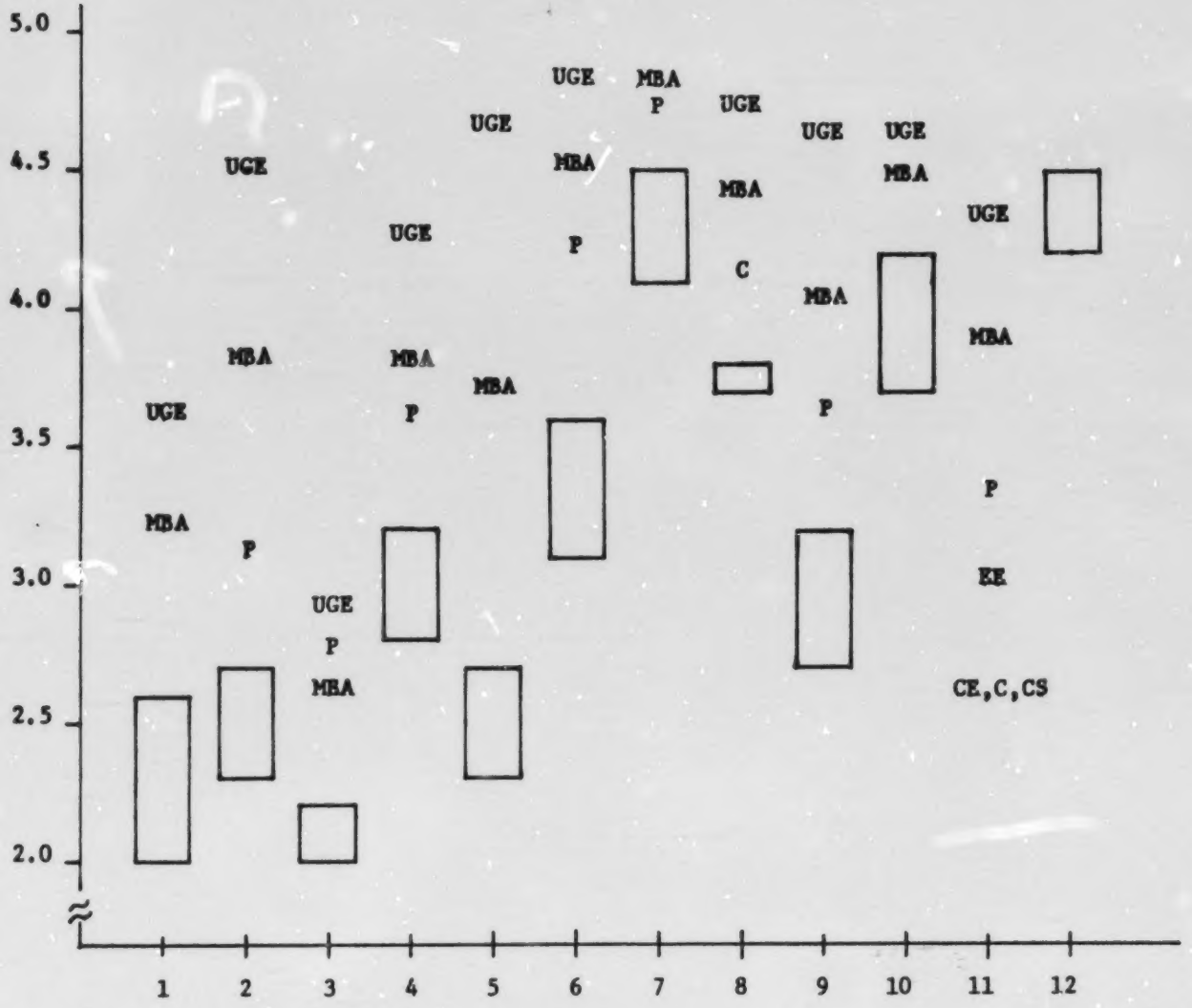
*"Do you use the same standards to evaluate the writing of native and nonnative speakers of English?"

FIGURE 1

GROUP MEANS ON EVALUATION CRITERIA



Evaluation Criteria (Numbers correspond to question numbers on page 4 of the questionnaire.)

Note: Except as noted, means for all departments are within boxed area.

TABLE 6

MOST IMPORTANT FEATURE

SELECTED FROM CRITERIA INFLUENCING GRADES ON WRITTEN ASSIGNMENTS

Feature	DISCIPLINES[a] UGE	MBA	CE	EE	P	C	CS	TOTAL
1. Punctuation/spelling	0[b]	7	0	0	0	0	0	1
2. Sentence structure	3	0	0	0	0	0	0	1
3. Vocabulary size	0	0	0	0	0	0	0	0
4. Vocabulary usage	0	0	0	0	0	3	0	1
5. Paragraph organization	6	3	0	0	0	0	0	2
6. Paper organization	9	3	4	0	0	7	16	6
7. Quality of content	0	48	42	28	54	48	44	37
8. Development of ideas	16	7	8	12	17	14	16	13
9. Writing ability	38	7	12	0	8	0	0	10
10. Addresses topic	16	21	15	4	8	14	4	12
11. Appropriate to audience	6	0	0	0	0	0	0	1
12. Assignment requirements	0	0	15	48	12	10	20	14

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

TABLE 7

LEAST IMPORTANT FEATURE

SELECTED FROM CRITERIA INFLUENCING GRADES ON WRITTEN ASSIGNMENTS

Feature	DISCIPLINES[a] UGE	MBA	CE	EE	P	C	CS	TOTAL
1. Punctuation/spelling	28	21	15	24	62	41	36	32
2. Sentence structure	3	3	0	8	0	3	4	3
3. Vocabulary size	59	59	65	44	25	21	24	43
4. Vocabulary usage	0	3	0	4	0	3	0	2
5. Paragraph organization	0	7	0	4	8	10	12	6
6. Paper organization	0	0	0	4	0	0	0	1
7. Quality content	3	0	0	0	0	0	0	1
8. Development of ideas	0	0	0	0	0	0	4	1
9. Writing ability	0	0	0	0	0	0	0	0
10. Addresses topic	0	0	0	0	0	0	0	0
11. Appropriate to audience	0	3	19	12	4	21	20	11
12. Assignment requirements	0	0	0	0	0	0	0	0

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

TABLE 8

Percent of Departments Indicating Use of Same Standards for Native and Nonnative Students

Disciplines							
UGE	MBA	CE	EE	P	C	CS	Total
75	55	65	84	42	86	76	69

Writing Problems of Native and Nonnative English-Speaking Students

The features of written assignments on page 4 of the questionnaire were repeated, and respondents were asked to rate perceived problems of both native and nonnative speakers of English* on a three-point scale (1 for minor or rare, 2 for moderate or occasional, and 3 for large or frequent). In general, judgments about these problems were in close agreement across departments (see Table 10).

The most prevalent trend indicated across the several features, for all departments, was that nonnatives are perceived to have large problems with overall writing ability, as well as with correctness of punctuation/spelling (48-85% range of percentages) and with quality of sentence structure (42-84% range). These three features generally were rated as moderate problems for natives. Three other features--quality of content, addresses topic, and meets assignment requirements--were not reported to be large problems for either natives or nonnatives.

Although some slight divergence of opinion was expressed by specific departments for each of the twelve features, the ratings assigned by most departments can be summarized as follows:

- Large problems for nonnatives/moderate for natives--correctness of punctuation/spelling, quality of sentence structure, and overall writing ability
- A large or moderate problem for nonnatives/moderate for natives--quality of overall paper organization
- A large or moderate problem for nonnatives/moderate or minor for natives--size of vocabulary
- A large or moderate problem for nonnatives/minor for natives--appropriateness of vocabulary usage

*For brevity, the terms native and nonnative speakers of English are truncated to "native" and "nonnative," with "speakers of English" implied.

TABLE 9

WRITING FEATURES EVALUATED MORE LENIENTLY BY DEPARTMENTS

THAT USE DIFFERENT STANDARDS FOR NONNATIVE STUDENTS

Feature	DISCIPLINES[a] UGE	MBA	CE	EE	P	C	CS	Total
1. Punctuation/spelling	75[b]	67	100	75	93	100	100	90
2. Sentence structure	50	58	100	100	79	100	100	83
3. Vocabulary size	100	83	100	100	93	100	80	93
4. Vocabulary usage	63	67	77	75	64	50	60	66
5. Paragraph organization	15	17	67	25	36	75	40	38
6. Paper organization	0	0	22	25	14	50	20	14
7. Quality of content	13	0	0	25	7	0	0	7
8. Development of ideas	0	0	22	25	7	25	0	10
9. Overall writing	13	50	88	50	50	50	80	55
10. Addresses topic	0	8	0	25	0	0	0	3
11. Appropriate to audience	50	25	44	25	36	50	60	41
12. Assignment requirements	0	0	0	0	7	25	0	3

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline that answered "No" to Item 16, regarding use of similar criteria for nonnative and native speakers of English.

TABLE 10

WRITING PROBLEMS OF NATIVE AND NONNATIVE STUDENTS

Feature	Problem rating	DISCIPLINES[a] UGE N	UGE NN	MBA N	MBA NN	CE N	CE NN	EE N	EE NN	P N	P NN	C N	C NN	CS N	CS NN	TOTAL N	TOTAL NN
1. Punctuation/spelling	minor 1	12	3	17	7	0	0	28	4	42	12	14	7	28	12	19	6
	2	56	34	66	31	73	15	60	40	50	33	76	34	64	40	64	33
	large 3	28	62	14	59	27	85	12	56	8	50	7	55	8	48	15	59
2. Sentence structure	minor 1	6	0	24	3	15	0	40	4	42	4	24	3	32	4	25	3
	2	66	16	66	21	65	23	48	20	42	50	66	10	68	36	61	24
	large 3	25	84	7	72	15	77	12	76	17	42	7	83	0	60	12	72
3. Vocabulary size	minor 1	41	9	66	7	46	8	56	4	58	12	66	10	68	20	57	10
	2	50	59	24	55	46	50	40	40	38	54	31	52	32	36	37	50
	large 3	6	31	3	31	8	42	4	56	4	29	0	34	0	44	4	38
4. Vocabulary usage	minor 1	31	0	59	7	54	8	60	4	62	12	48	3	76	8	55	6
	2	53	22	34	55	42	38	36	44	33	54	45	45	24	56	39	44
	large 3	9	75	3	31	4	54	4	52	4	29	3	48	0	36	4	47
5. Paragraph organization	minor 1	3	3	14	3	27	12	20	8	38	17	34	21	40	32	24	13
	2	69	44	69	59	58	54	68	60	54	58	62	45	48	40	62	51
	large 3	25	53	14	34	15	35	12	32	4	21	0	31	8	24	12	34
6. Paper organization	minor 1	0	3	7	3	15	8	24	8	25	17	17	7	24	20	15	9
	2	59	47	62	41	69	69	56	56	58	62	69	66	60	48	62	55
	large 3	38	50	28	52	15	23	20	36	17	17	10	24	16	32	21	34
7. Quality of content	minor 1	9	9	17	14	19	23	40	32	25	25	31	24	16	16	22	20
	2	62	59	66	76	69	54	56	48	54	50	55	55	64	60	61	58
	large 3	25	31	14	7	12	23	4	20	17	21	10	17	20	24	15	21
8. Development of ideas	minor 1	6	9	14	3	31	12	24	16	25	21	28	14	8	8	19	12
	2	53	44	79	69	50	54	76	72	46	46	59	48	76	68	63	57
	large 3	38	47	3	21	19	35	0	12	29	29	10	34	16	24	17	29
9. Overall writing	minor 1	9	0	17	7	19	0	20	4	25	4	24	3	28	8	20	4
	2	56	31	66	28	69	35	80	40	62	62	69	45	68	32	67	38
	large 3	28	66	14	59	12	65	0	56	12	29	3	48	4	60	11	55
10. Addresses topic	minor 1	28	16	28	17	15	8	32	16	38	21	31	17	24	20	28	16
	2	56	53	62	52	73	62	68	68	54	62	62	55	76	72	64	60
	3	12	31	7	28	12	31	0	16	8	12	3	24	0	8	6	22
11. Appropriate to audience	minor 1	12	3	38	10	35	19	36	20	62	33	52	34	72	56	43	24
	2	78	50	48	59	54	50	64	56	38	62	45	48	28	28	52	51
	large 3	6	47	10	28	12	31	0	24	0	0	0	14	0	16	4	24
12. Assignment requirements	minor 1	28	12	41	28	46	19	32	16	50	33	48	24	36	24	40	22
	2	69	75	48	55	50	62	68	56	46	58	45	59	52	64	54	62
	large 3	0	12	7	14	4	19	0	28	4	4	3	14	12	12	4	15

[a] See Table 1 for Ns and label descriptions.

- o A moderate problem for nonnatives/moderate or minor for natives--meets assignment requirements

- o Moderate problems for both nonnatives and natives--quality of paragraph organization, quality of content, development of ideas, and addresses topic adequately and directly

- o A moderate problem for nonnatives/minor or moderate for natives--appropriate to the audience

The undergraduate English departments tended to express the most disagreement with other departments, possibly because they are more sensitive to particular features of writing. For example, English departments perceived nonnatives to have large problems with quality of sentence structure, appropriateness of vocabulary usage, and adopting a tone, attitude, or style appropriate to the audience. For both natives and nonnatives, many English departments rated quality of paper organization and development of ideas as moderate to large problems.

To enable us to provide an overview of the perceived native-nonnative differences with regard to writing problems, the differences between all assigned ratings were calculated. The differences in Table 11 were obtained by subtracting the ratings for nonnative speakers of English from the ratings assigned to native speakers. The distribution of these differences (native ratings minus nonnative ratings) ranged from -2 to +2 for each feature for departments within each discipline. The differences were summarized by assigning a 0 where a large percentage of departments indicated essentially no difference, and assigning an X where a large percentage indicated a difference (+2 or +1). In cases where the percentages are essentially split between assignments of no difference-difference ratings, both an X and an 0 were tabulated. This tabulation provides a more succinct overview of the judgments regarding native/nonnative differences. For example, 72% of the MBA departments perceived a difference (+1) between natives and nonnatives in the quality of sentence structure, resulting in an X tabulation; for undergraduate English departments, however, 34% perceived no differences (0) and 60% perceived differences (+1) for this feature, resulting in an X,0 tabulation. This tabulation compresses the table of percentages (Table 10), providing a more succinct overview of the judgments.

No differences (0's) in the problems of natives and nonnatives were reported, for all departments, for the following features:

6. Quality of paper organization
7. Quality of content
8. Development of ideas
10. Addresses topic adequately and directly

TABLE 11

DIFFERENCES BETWEEN WRITING PROBLEMS OF NATIVE AND NONNATIVE SPEAKING STUDENTS*

Feature	DISCIPLINES[a] UGE	MBA	CE	EE	P	C	CS	TOTAL
1. Punctuation/spelling	0,X	X	X	0,X	X	0,X	0,X	X
2. Sentence structure	X	X	X	X	0,X	X	X	X
3. Vocabulary size	X	X	X	X	X	X	X	X
4. Vocabulary usage	X	X	X	X	X	X	X	X
5. Paragraph organization	0	0	X	0	0	0	0	0
6. Paper organization	0	0	0	0	0	0	0	0
7. Quality of content	0	0	0	0	0	0	0	0
8. Development of ideas	0	0	0	0	0	0	0	0
9. Overall writing	0,X	X	X	X	0,X	0,X	X	X
10. Addresses topic	0	0	0	0	0	0	0	0
11. Appropriate to audience	0,X	0,X	0	0	0	0	0	0
12. Assignment requirements	0	0	0,X	0	0	0	0	0

[a] See Table 1 for label descriptions.

* Obtained by subtracting the ratings assigned to nonnative speakers of English from the ratings assigned to native speakers of English. In no instance were native problems reported to be larger than the problems of nonnatives. Since entries for the "Other" category were minimal, ranging from 89.66-100%, these entries are not reported.

Key: 0 = no difference
X = difference (nonnatives with larger problems than natives)
0,X = split between no difference and difference

Essentially no differences were reported, with a few discrepant departments, for the following problems:

5. Paragraph organization (with only civil engineering departments reporting nonnative problems)
11. Appropriate to audience (with ties for differences/no differences in undergraduate English and MBA departments [0,X])

Finally, differences (X's) in problems between natives and nonnatives were reported for the following:

1. Correctness of punctuation/spelling (with some ties)
2. Quality of sentence structure (with one tie in psychology departments)
3. Size of vocabulary
4. Vocabulary usage
9. Overall writing ability (with some ties)

In no instance were the problems of natives reported to be larger than the problems of nonnatives. Since entries of natives for "other" categories were minimal, in that blanks (no entries) ranged from 89.7 to 100%, these few entries are not reported.

One interesting observation is that, in most departments, overall writing ability was judged to be more of a problem for nonnatives than for native speakers of English, yet the dominant problems reported for nonnatives are at the sentence level (feature 2), or deal with vocabulary (features 3 and 4), and punctuation/spelling (feature 1). In contrast, for the ratings reported for Criteria Used to Evaluate Written Assignments (page 4 of the questionnaire), all departments except undergraduate English claimed to place more emphasis on features beyond the sentence level--quality of overall paper organization (feature 6), quality of content (feature 7), development of ideas (feature 8), addresses topic (feature 10), and meets assignment requirements (feature 12). Hypothetically, the problems related to these features are detected but not used as ultimate criteria; however, the fact that these problems are emphasized in the context of the overall writing ability of nonnative speakers should be noted.

A Writing Sample in the Admissions Process

Page 6 of the questionnaire contains items concerned with information that is used, and information that would be desirable, at the time of admissions, particularly writing samples for nonnative speaking applicants.

Writing samples used at the time of admission. Item 1 asked whether the respondent's institution administered a writing sample, and for what purposes. For the total sample of departments completing the questionnaire, only 27 percent indicated that they use a writing sample at the time of admissions (Table 12). Nearly half (47%) of the English departments use a writing sample. The use of writing samples by the other departments ranged from 23 to 28 percent.

TABLE 12

PURPOSES OF WRITING SAMPLES CURRENTLY USED AT THE TIME OF ADMISSIONS

		DISCIPLINES[a]															
		UGE		MBA		CE		EE		P		C		CE		TOTAL	
Does your institution administer a writing sample at the time of admission?	YES	47[b]		28		23		20		17		24		28		27	
If your institution uses a writing sample, for what purposes?		N	NN	N	NN	N	NN	N	NN	N	NN	N	NN	N	NN	N	NN
1. as essential admissions criterion		9	6	21	21	0	0	4	16	17	17	10	14	4	8	9	12
2. for borderline admissions decisions		6	3	10	7	4	4	4	8	8	8	14	14	16	12	9	8
3. for course placement		31	41	0	3	4	19	0	4	0	0	0	3	8	12	7	13
4. for campus job placement		0	0	0	0	0	0	4	8	0	0	0	3	0	0	1	2
5. other		3	3	0	0	0	0	0	0	0	0	3	3	0	0	1	1

[a] See Table 1 for label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

Key: N = Native speakers of English
NN = Nonnative speakers of English

For those departments that administer a writing sample, a prevalent purpose reported across all departments was for making borderline admissions decisions about both natives and nonnatives, particularly in the chemistry and computer science departments. Some of the departments that administer a writing sample also use it as an essential admissions criterion with the exception of civil engineering. Instead, 4 percent of the civil engineering departments use a writing sample for borderline admissions decisions for both natives and nonnatives; for nonnatives in particular, the writing samples are used by these departments for course placement decisions (19% of the 23% reporting). Some electrical engineering departments (16% of the 20% reporting) use the writing samples as an essential admissions criterion for nonnatives, whereas only 4% of these departments do so for native speakers of English. The undergraduate English departments place the greatest emphasis on the use of writing samples for course placement for both natives (31%) and nonnatives (41%). In addition to some civil engineering departments (19%), a few computer science departments use the writing samples for course placement of nonnatives (12%). Very few departments use writing samples for job placement; 8% of the electrical engineering departments reported this purpose for nonnatives (4% for natives), and only 3% of the chemistry departments use writing sample for nonnatives. The "other" purposes reported by respondents were miscellaneous, minor entries.

Other admissions information. In response to item 3 on page 6 of the questionnaire (an open-ended question), 59% of the respondents indicated what other forms of admissions information about nonnative-speaking applicants would be helpful beyond the admissions criteria currently in use (Table 13). These responses were coded, yielding fourteen other kinds of admissions information that might be needed. Of the 112 departments responding to this item, 44-83% indicated the need for additional information, particularly the MBA departments (83%). The two predominant kinds of useful information that departments reported they might need were information about oral communications skills, language abilities, and a "general" writing sample (as opposed to a writing sample with a specific designation, such as modes of discourse, in undergraduate English). The chemistry (41%) and computer science (32%) departments reported the greatest interest in information about oral communications skills; some interest in these skills was expressed by the MBA (14%), electrical engineering (12%), and psychology (12%) departments. The "language abilities" category was applied to code any responses concerned with more than one mode of communication. Approximately the same degree of interest that was expressed in oral communications skills was expressed for language abilities, even more so by electrical engineering departments (20%), but with less concern for abilities other than oral communication in the chemistry and computer science departments.

As seen in Table 13, a variety of other needs at the time of admission was reported by small percentages of departments in the several disciplines. Only 1 percent of the departments in the sample noted their concerns about the authenticity of writing samples for nonnatives (this problem also was occasionally mentioned by other respondents in the margins of the questionnaire). Primarily the undergraduate English

TABLE 13

OTHER ADMISSIONS INFORMATION NEEDED ABOUT NONNATIVE SPEAKING ENGLISH STUDENTS

		DISCIPLINES[a]							
		UGE	MBA	CE	EE	P	C	CS	Total
Beyond the admissions criteria you are now using, would any other additional information about nonnative speaking applicants be helpful to your department or institution?	YES	53[b]	83	54	44	54	66	56	59
Kinds of useful information:									
1. General writing sample		25	14	19	0	12	7	4	12
2. Specific writing sample		3	0	0	0	0	0	0	1
3. Content-specific writing sample		0	0	0	4	4	0	0	1
4. Language abilities		3	14	4	20	12	7	4	9
5. Oral communication skills		3	14	4	12	12	41	32	17
6. Listening skills		0	3	8	0	0	0	4	2
7. Security issue concerning authorship of writing sample		0	3	0	0	4	0	0	1
8. Quality of sending institution		0	7	4	4	0	3	12	4
9. Writing ability under time pressure		6	3	0	0	0	0	0	2
10. Exposure to English		3	7	0	4	0	0	4	3
11. On-campus evaluations of interview and writing sample		3	3	4	0	0	3	0	2
12. Standardized tests		0	0	0	4	0	0	0	1
13. Interview		0	3	0	0	0	0	0	1
14. Miscellaneous		0	0	4	0	0	0	0	1

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

departments (25%) indicated an interest in a writing sample for nonnatives; a little interest in a writing sample was voluntarily expressed in this question by civil engineering (19%), MBA (14%), and psychology (12%) departments. A subsequent item, discussed in the next section, more directly addresses the degree of interest expressed in a writing sample on TOEFL.

A TOEFL writing sample. Item 5 on page 6 of the questionnaire specifically asked the respondents to indicate whether a writing sample administered with TOEFL would be useful to them; 63% (N=120) of all departments checked "Yes"; 31%, or 59 departments checked "No" (Table 14). In particular, 97% of the undergraduate English departments and 83% of the MBA departments responded positively. Relatively large percentages (48-54%) of the other departments also reported an interest in a TOEFL writing sample. Of the purposes listed, 58% of the departments expressed some interest in using the writing sample for borderline admissions decisions about nonnatives, especially the electrical engineering (72%), chemistry (66%), MBA (62%), and psychology (62%) departments. The undergraduate English departments (81%) particularly reported an interest in the use of the writing sample for course placement. Moderate to small percentages of departments also considered the purpose of the writing sample to be a possible essential admissions criterion. Additional entries in the "other" blank covered a wide range of other possible purposes; the civil engineering entries, for example, suggested various ways to use a writing sample for "diagnostic" purposes.

The sixth question on page 6 asked respondents to indicate which of two methods of scoring a possible TOEFL writing sample might be preferred. Of all departments responding, 58% (N=110) reported an interest in separate scores for three global features of a writing sample; 31% (N=59) preferred a single score; 3% (N=5) checked both choices. Electrical engineering departments split their choices between single and separate scores, whereas considerable percentages of the other departments selected the option of separate scores. These percentages of responses are reported in Table 15.

TABLE 15

Preferred Methods of Scoring

	Single Score	Separate Score	Both
UGE	34	59	6
MBA	17	69	10
CE	31	54	0
EE	48	52	0
P	25	62	0
C	38	48	0
CS	24	60	0
All departments	31	58	3

TABLE 14

PURPOSES OF WRITING SAMPLE IF ADMINISTERED WITH THE TOEFL

		DISCIPLINES[a]							
		UGE	MBA	CE	EE	P	C	CS	TOTAL
Would a writing sample on TOEFL be useful to you?	YES	97[b]	83	54	48	54	48	48	63
If a writing sample were included on TOEFL, for what purposes would you use it?									
1. an essential admissions criterion		31	38	15	16	21	14	12	22
2. for borderline admissions decisions		34	62	58	72	62	66	56	58
3. for course placement		81	24	35	20	17	21	12	32
4. for campus job placement		6	0	8	16	8	21	16	11
5. other		9	3	15	0	0	3	4	5

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

Additional comments. Respondents offered comments in the final section of page 6, or in the margins throughout the questionnaire. These comments were recorded and sorted into common categories. Many of these notes addressed the topic types that were evaluated on pages 8-16 of the questionnaire, or consisted of suggestions concerning the selection of a topic for a writing sample. These comments have been used to assist in the interpretation of the ratings of topic types, and are either integrated, or specifically referred to, in the results section dealing with these pages of the instrument. The comments that are particularly pertinent to the items on page 6 generally explained or reinforced the ratings the respondents supplied. They covered a wide range, including holistic scoring, test security, and writing sample authenticity; various uses of a writing sample, and wanting to see the samples themselves; and the need to demonstrate the reliability and face and predictive validity of writing samples that might be administered on TOEFL.

Evaluation of Topic Types

Respondents rated each of ten writing sample topic types as acceptable/good, acceptable/fair, or unacceptable for use in making admissions or placement decisions for nonnative speaking applicants. Results are summarized in Table 16. Topic types for which there were substantial differences across departments should be noted. For example, Type C (spatial or functional description) was rated relatively high by most departments but unacceptable by 34% of the undergraduate English departments. Comments from the English departments that disliked this topic suggest that they thought it discourages the eliciting of organizational skills; the task is structured to such an extent that it could not easily be used to discriminate among students who can organize competently and those who cannot. However, this kind of structured description is apparently very important in electrical engineering and chemistry (where the arrangement of lab equipment must be specified in detail). Type G (argumentation with audience designation) was unpopular with undergraduate English faculty but was very well liked by faculty in MBA programs. Curiously, it was apparently liked and disliked for the same reason, namely, that this is a relatively difficult kind of writing to do. Many undergraduate English faculty members reported that it is too much to expect beginning undergraduates, especially nonnatives, to be able to do this kind of writing. However, the interviews with business faculty indicated that although they recognized that this is a difficult writing assignment, it is also crucial to the kind of writing students have to do in MBA programs.

Although Type H (describe and interpret a graph/chart) was a highly rated topic in all graduate departments, it was rated as unacceptable by 56% of the undergraduate English departments. The English faculty complained that this topic type, like Type C, does not require the student to use organizational skills. In addition, they objected that it confounds writing ability with graph-reading skills. The graduate departments may have been less concerned about this confounding because they assume that students applying for graduate admission will have

Table 16

Acceptability Ratings for Ten Topic Types

		Acceptability Ratings	DISCIPLINES[a]							
			UGE	MBA	CE	EE	P	C	CS	TOTAL
Topic A:	Essay--Personal	Acceptable/Good	41[b]	34	15	24	46	31	44	34
		Acceptable/Fair	38	38	65	48	50	38	36	44
		Unacceptable	22	24	15	20	4	24	20	19
Topic B:	Description--Sequential or Chronological	Acceptable/Good	31	41	42	48	29	38	48	39
		Acceptable/Fair	44	45	46	32	54	55	44	46
		Unacceptable	22	10	12	12	17	0	4	11
Topic C:	Description--Spatial or Functional	Acceptable/Good	25	14	31	60	42	48	36	36
		Acceptable/Fair	41	55	46	24	46	38	56	44
		Unacceptable	34	28	23	8	12	7	4	17
Topic D:	Compare/Contrast	Acceptable/Good	75	48	35	40	33	41	44	46
		Acceptable/Fair	22	41	58	40	62	38	40	42
		Unacceptable	3	7	8	12	4	14	12	8
Topic E:	Compare/Contrast Plus Take a Position	Acceptable/Good	75	86	27	28	54	31	28	48
		Acceptable/Fair	12	7	65	44	42	45	52	37
		Unacceptable	12	3	8	20	4	17	16	12
Topic F:	Extrapolation	Acceptable/Good	47	41	19	32	25	24	20	31
		Acceptable/Fair	34	48	65	48	62	52	64	53
		Unacceptable	19	7	15	12	12	17	12	14
Topic G:	Argumentation with Audience Designation	Acceptable/Good	41	79	46	32	29	28	12	39
		Acceptable/Fair	22	7	42	32	50	38	72	36
		Unacceptable	38	10	12	28	21	28	12	22
Topic H:	Describe and Interpret a Graph/Chart	Acceptable/Good	16	59	58	56	75	66	48	53
		Acceptable/Fair	16	17	31	20	8	14	24	18
		Unacceptable	56	14	8	12	12	7	12	18
Topic I:	Summarize a Passage	Acceptable/Good	12	31	38	20	46	31	40	31
		Acceptable/Fair	19	38	23	20	25	28	40	27
		Unacceptable	53	14	19	40	17	21	8	25
Topic J:	Summarize Plus Analyze	Acceptable/Good	31	45	42	20	58	14	28	34
		Acceptable/Fair	12	24	35	12	29	38	48	28
		Unacceptable	41	7	15	48	4	24	4	21

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

acquired the requisite graph-reading skills. Types I (summarize a passage) and J (summarize and analyze a passage) were also seen as too complex by many of the undergraduate English departments and by faculty in electrical engineering. In addition, several undergraduate English departments complained that these topics confound reading ability and writing skill.

Most appropriate topic types. Respondents were asked to review the entire list of topic types and list, in order, up to five preferred types. Because many departments listed only three preferred types, analyses presented here are limited only to first, second, and third choices. First-place choices are presented in Table 17. As anticipated, the results shown in Table 17 reflect the same pattern indicated in Table 16. Except for undergraduate English and MBA programs, the most favored topic type was the description and interpretation of a graph or chart (Type H). Business departments tended to favor argumentation with audience designation (Type G) and summary and analysis of a written passage (Type J). Undergraduate English departments were widely split, and there was no clear consensus favoring any single topic type.

A scoring procedure was devised in order to consider simultaneously first, second, and third choices. First choices were assigned a value of 3, second choices a value of 2, and third choices 1. For each topic type, these values were multiplied by the percentage of departments selecting that type as a first, second, or third choice, and the results were summed. For example, 19% of the undergraduate English departments selected Type A as a first choice (19 x 3 = 57); 6% selected A as a second choice (6 x 2 = 12); and 6% selected A as a third choice (6 x 1 = 6), for a total score of 75 (57 + 12 + 6 = 75). Scores could theoretically range from 0 (topic not selected as a first, second, or third choice by any department in the academic discipline) to 300 (topic selected as the first choice by every department in the discipline). In fact, scores ranged from 0 to 167. Results are presented in Table 18.

Although these results generally confirm the findings limited to first choices only (Table 17), some differences emerge from considering the first three choices. In particular, the preference of undergraduate English departments for Type E (compare/contrast plus take a position) becomes clearer. The lack of enthusiasm for this topic type by civil engineering and chemistry departments remains apparent. Looking across departments, it is clear that no single topic type was universally approved or universally disapproved. Although Type H (describe and interpret a graph or chart) was the clear overall favorite, it was not one of the top three choices among MBA programs and was the next-to-last choice for undergraduate English programs.

Comments about writing samples. Some respondents supplied additional comments concerned with writing samples in the "comments" blanks on page 6, in the margins throughout, or at the end of the questionnaire. Most of the comments about specific topic types were coded, and have been incorporated in the results section discussing the evaluations of the topic types.

TABLE 17

TOPIC TYPES SELECTED AS MOST APPROPRIATE

	Topic Types	DISCIPLINES[a] UGE	MBA	CE	EE	P	C	CS	TOTAL
Topic A:	Essay--Personal	19[b]	17	8	8	21	14	20	15
Topic B:	Description--Sequential or Chronological	3	0	12	20	0	3	16	7
Topic C:	Description--Spatial or Functional	0	0	4	8	4	0	12	4
Topic D:	Compare/Contrast	12	3	12	4	0	0	0	5
Topic E:	Compare/Contrast Plus Take a Position	12	14	0	0	8	0	4	6
Topic F:	Extrapolation	3	0	0	0	0	10	4	3
Topic G:	Argumentation with Audience Designation	16	28	8	8	4	3	4	11
Topic H:	Describe and Interpret a Graph/Chart	3	10	42	24	29	48	32	26
Topic I:	Summarize a Passage	0	0	8	8	8	3	0	4
Topic J:	Summarize plus Analyze	19	24	4	4	12	3	4	11

[a] See Table 1 for Ns and label descriptions.

[b] All table entries are percentages of the total number of departments in each academic discipline.

TABLE 18

SCORES FOR TOP THREE TOPIC CHOICES

TOPIC TYPE	DISCIPLINES[a]							
	UGE	MBA	CE	EE	P	C	CS	TOTAL
A	75[b]	61	28	32	67	73	72	58
B	21	27	82	92	24	58	104	55
C	15	0	36	56	29	56	56	35
D	89	29	56	44	16	24	28	43
E	114	97	15	28	36	6	36	31
F	57	34	20	12	28	50	28	34
G	66	118	70	32	16	29	12	53
H	12	79	154	128	137	167	124	111
I	6	27	54	32	83	36	36	39
J	69	100	43	36	82	9	44	57

[a] See Table 1 for No and label descriptions.

[b] Table entries are scores derived as follows:
(% departments selecting topic as first choice x 3) + (% departments selecting topic as second choice x 2) + (% departments selecting topic as third choice) = score.

A few respondents offered recommendations for writing sample topics, ranging from personal essays to complex tasks; several comments supported the importance of a writing sample that would demonstrate students' ability to put thought processes into words. Only nineteen respondents from the different departments preferred a field-specific topic, such as the documentation of procedures in civil engineering; however, they emphasized the field-specific writing skills that might be elicited rather than content. With regard to cultural considerations, very few respondents commented that the content, as well as the modes of rhetoric required by a topic, should not impose limitations on students from non-Western cultures. Approximately twenty respondents, spread across the departments, also offered comments about the scoring and possible uses of a writing sample on TOEFL.

Multidimensional scaling of topic types. To get a summary picture of the relationships among topic types both within and between academic disciplines, the acceptability ratings were analyzed using a multidimensional scaling approach that accommodates differences between raters. Within each discipline, the pattern of responses to each topic type was compared to the pattern of responses for every other topic type. In multidimensional scaling terminology, these differences are called distances; a small distance indicates a very similar response pattern for a pair of topic types. Pairwise topic distances were computed by weighting responses as shown in Table 19.

TABLE 19

Response Weights for Topic Distances

		Topic Y		
		Good	Fair	Unacceptable
Topic X	Good	0	1	2
	Fair	1	0	1
	Unacceptable	2	1	0

If the ratings given by a different department were the same for topics X and Y (e.g., both topics receive good ratings), the response weight was 0, making the distance estimate 0. If the ratings differed by one rating category (e.g., good vs. fair or fair vs. unacceptable), the weight of 1 was assigned, and if ratings differed by two categories (good vs. unacceptable), a weight of 2 was assigned. For each pairwise comparison, the sum of response weights over each department in an academic discipline was then computed. Next, the sum of the weighted responses was divided by the number of respondents (i.e., departments reporting data) in the discipline to get comparable numbers for disciplines represented by unequal numbers of respondents. Separately for each discipline, the distances were entered into 10 x 10 topic-by-topic distance matrices. These standardized distance matrices are presented in Appendix E. Lower

numbers on these tables indicate topics that were rated similarly, while higher numbers indicate a relatively large distance between the ratings (i.e., one topic type in the pair is seen as considerably more acceptable than the other).

The 10 x 10 topic-by-topic distance matrices for each of the seven disciplines were analyzed with SINDSCAL (see Carroll, 1981, for a detailed explanation of the operation of this program). Solutions in one, two, and three dimensions were computed. The two-dimensional solution was chosen for ease of interpretation and because three dimensions did not add substantial information. Once chosen, the two-dimensional solution was computed a second time to ensure that it was not an artifact of a single starting configuration or a local minimum.

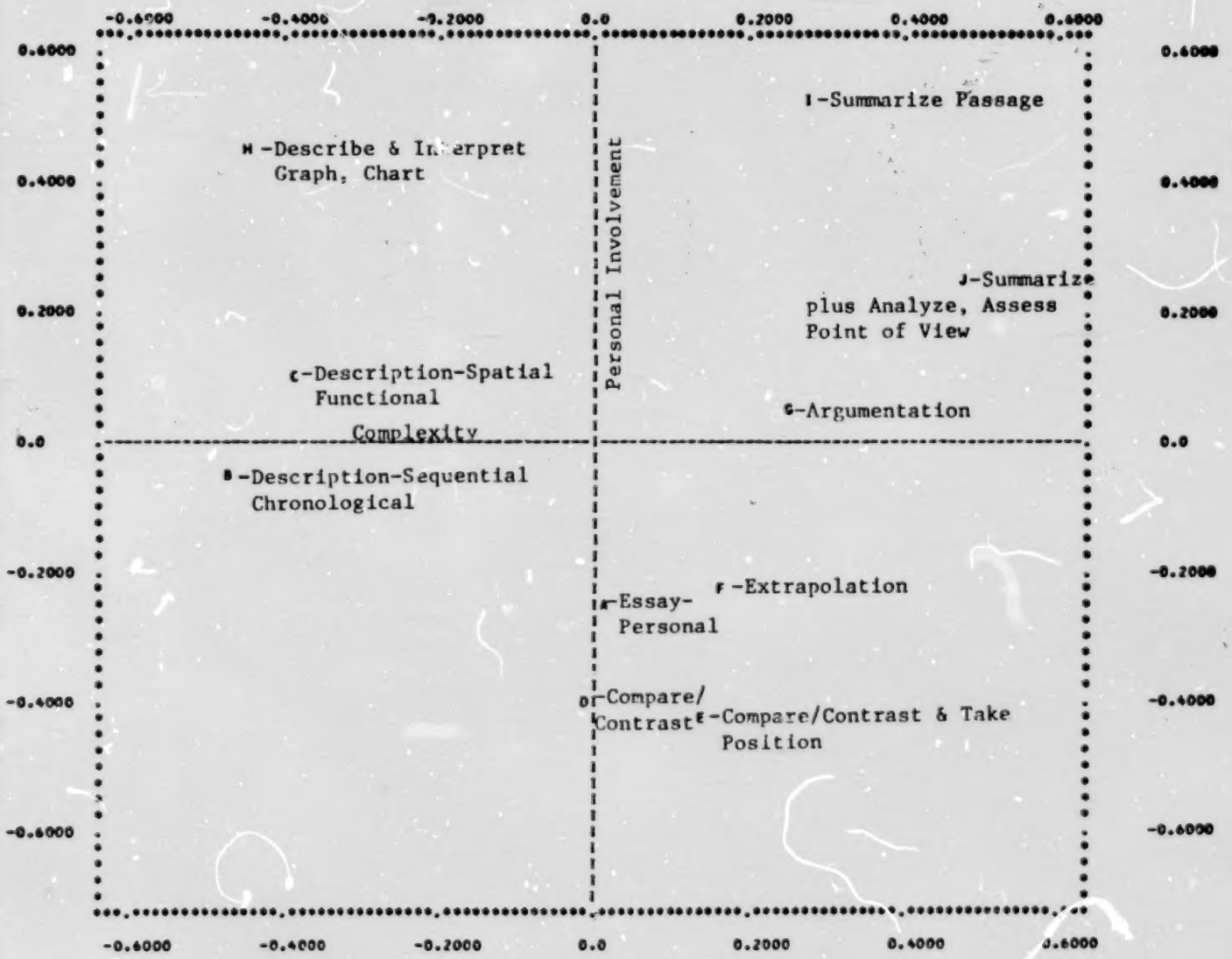
The two-dimensional solution yields a correlation of .71 between the raw distance data and the scaled distance data, indicating that the two-dimensional solution fits fairly well. Figure 2 shows locations of the ten topic types in the two-dimensional stimulus space. Topic types that are physically close to each other in this space were evaluated similarly by the questionnaire respondents.

In contrast to factor analysis, with SINDSCAL the horizontal and vertical axes from can be interpreted directly without rotation. However, names for the axes are somewhat arbitrary, in that they are based on the interpretation of the relationships among the topic types as they are grouped within the stimulus space. The positions of the topic types, as rated by the respondents, reflect their perceptions of the similarities and differences among the topic types. Based on the a priori influences we assumed when designing the contrasting topic types, and on the comments offered by respondents, we have labeled the axes in the stimulus space. The topic types on the left side of the space (H, C, B) appear to be relatively straightforward and to require fewer analytic thinking skills; the description tasks may impose fewer information processing demands on the writer as the material is organized for presentation. The topics on the right (G, I, J) of the vertical axis appear to require more complex, or combinations of more different kinds of, thinking (hence organizational skills); the compare and contrast topic type (D, E), for example, expects students to generate two parallel lines of reasoning and relate them to one another. Further, extrapolation (F) requires the writer to extend his or her thinking beyond the data at hand, summarize a passage (I) implies the application of analytic skills to a reading passage, and summarize plus analyze and assess (J) combine descriptive and analytic skills, as well as some degree of reasoning. The respondents who selected these items, in fact, indicated preference for topic types that also would elicit a demonstration of reasoning or thinking processes. Thus this horizontal axis was simply labeled "complexity."

The vertical axis, read from the top down, appears to represent the extent to which topic types demand that the writer bring personal knowledge and experience to the writing task. Most of the topic types that fall within the upper half of the stimulus space (H, I, J) supply the material (graph or chart, reading passage) that the writer uses in

Figure 2

Location of Topic Types in Two-Dimensional Stimulus Space



completing the task requirements; the degree to which an individual writer inserts personal knowledge or experience depends on that individual's approach to the task. Two of the description tasks (C, B) are located near the midpoint of this dimension. However, topic type C, although requiring production of an image to be described spatially or functionally from memory, represents a relatively concrete description task. Topic type B, on the other hand, may require somewhat more abstract mental processes, in that a time dimension represents the application of a personal framework of time and spatial sequencing. At the other extreme of this "personal involvement" dimension, the topic type stimuli suggest only a central theme or idea, but the information and concepts that need to be presented in the piece must be supplied by the writer, drawn to a large extent from his or her knowledge and experience. Further research is needed to clarify the interrelationships among these topics.

Differences between disciplines are presented in Table 20. The entries in the table indicate the weight that respondents from each academic discipline placed on each dimension when judging the acceptability of topic types. Thus, for example, electrical engineering departments put great weight on the complexity dimension (other data suggest that they prefer topics on the less complex end of this dimension), but relatively little weight on the personal knowledge dimension (i.e., this dimension is not as important for grouping preferences of electrical engineering departments).

TABLE 20

Discipline Weight Matrix[a]

	UGE	MBA	CE	EE	PSY	C	CS
Complexity (horizontal dimension)	.38	.36	.46	.85	.05	.72	.50
Personal Involvement (vertical dimension)	.82	.17	.28	.31	.54	.27	.55

[a]In the SINDSCAL documentation this is referred to as the subjects weight matrix.

Correlations between the computed scores and scalar products for each academic discipline indicate how well the multidimensional scaling model fits the data for that discipline. The correlations are as follows: undergraduate English (.90), business management (.39), civil engineering (.54), electrical engineering (.90), psychology (.54), chemistry (.77), computer science (.75). Thus, except for business management programs, the model appears to fit fairly well, and it fits particularly well for undergraduate English and electrical engineering.

Section IV. Summary and Conclusions

A survey of the academic writing skills needed by beginning undergraduate and graduate students was conducted. The questionnaire was completed by faculty in 190 academic departments at 34 universities in the United States and Canada with high foreign student enrollments. At the graduate level, six academic disciplines with relatively high numbers of nonnative students were surveyed: business management (MBA), civil engineering, electrical engineering, psychology, chemistry, and computer science. Undergraduate English departments were chosen to document the skills needed by undergraduate students.

The major findings are summarized as follows:

- Although writing skill was rated as important to success in graduate training, it was consistently rated as even more important to success after graduation.

- Even disciplines with relatively light writing requirements (e.g., electrical engineering) reported that some writing is required of first-year students. Lab reports and brief article summaries are common writing assignments in engineering and the sciences. Longer research papers are commonly assigned to undergraduates and to graduate students in MBA, civil engineering, and psychology programs.

- Descriptive skills (e.g., describe apparatus, describe a procedure) are considered important in engineering, computer science, and psychology. In contrast, skill in arguing for a particular position is seen as very important for undergraduates, MBA students, and psychology majors, but of very limited importance in engineering, computer science, and chemistry.

- Faculty members reported that, in their evaluations of student writing, they rely more on discourse-level characteristics (e.g., paper organization, quality of content) than on word- or sentence-level characteristics (e.g., punctuation/spelling, sentence structure, vocabulary size).

- Discourse-level writing skills of natives and nonnatives are perceived as fairly similar, but significant differences between natives and nonnatives were reported for sentence- and word-level skills and for overall writing. A majority of departments reportedly use the same standards for evaluating the writing of native and nonnative students, although nearly a third of the departments reportedly use different standards.

- More than 80% of the undergraduate English and graduate business departments indicated that a TOEFL writing sample would be useful. In the other disciplines, approximately 50% of the

departments indicated that they would like to see a TOEFL writing sample.

- If TOEFL were to include a writing sample, most respondents indicated that scores on three separate features would be preferable to a single overall score. The primary purpose for the sample would be to supplement admissions decisions about borderline candidates; in addition, 81% of the undergraduate English departments indicated an interest in using the writing sample for course placement.

- Among ten writing sample topic types provided, Topic H (describe and interpret a graph or chart), was a clear favorite among the engineering and science departments. However, this topic was perceived as inappropriate by a majority of the undergraduate English faculty. Topic G (argumentation with audience designation) was the favorite among the MBA programs; Type E (compare and contrast plus take a position) was also evaluated positively by the MBA programs and was the favorite among undergraduate English faculty.

- A multidimensional scaling of the topic types suggested a two-dimensional space defined by a complexity dimension and a personal involvement dimension. Topic H (describe and interpret a graph or chart) can then be seen as a relatively simple and impersonal task. Topic E (compare/contrast and take a position) is a little above average on the complexity dimension and is a task requiring a relatively high degree of personal involvement in the topic.

Thus, from the standpoint of the Canale and Swain framework, the faculty members surveyed appear to view the written communicative competencies of their students predominantly from the perspective of sociolinguistic competence, placing considerably less emphasis on grammatical competence. For example, the written products prepared by students in the different disciplines may be considered competent to the extent that they meet the task demands--particularly kinds of writing assignments and certain skills--that are specific to a discipline. In addition, faculty members reported that written assignments are evaluated on the basis of discourse-level characteristics, rather than word- or sentence-level characteristics, and that they perceived the discourse-level writing skills of natives and nonnatives to be fairly similar. Grammatical competency, however, tends to influence evaluations of student writing to some extent, in that respondents reported that nonnatives are more deficient in word- and sentence-level skills than are natives. Finally, since one-third of the respondents stated that nonnatives may be evaluated more leniently than natives, the strategic competencies, or coping strategies, of nonnative students appear to have some bearing on their success in these institutions.

Although some important common elements among the different departments were reported, the survey data distinctly indicate that different disciplines do not uniformly agree on the writing task demands and on a

single preferred mode of discourse for evaluating entering undergraduate and graduate students. The extent to which essays written in different discourse modes produce different rank orderings of students remains to be seen. Furthermore, if significant differences in rank ordering are observed, the relationship of these orderings to TOEFL scores, both within and across academic disciplines and language groups, is yet to be determined. The survey results reported here are an important beginning to a construct validation of TOEFL as a measure of writing proficiency, but they are only a first step.

References

Angelis, P. J. Language skills in academic study. Unpublished manuscript. Princeton, N.J.: Educational Testing Service, 1982.

Blenton, L. L. ESP: Benefits for all of ESL. English for Special Purposes, 1982, 64, 6-7.

Boyan, D. R. (Ed.) Open Doors: 1980/81 Report on International Education Exchange. New York: Institute of International Education, 1981.

Buckingham, T. The goals of advanced composition instruction. TESOL Quarterly, 1979, 13, 241-254.

Canale, M., & Swain, M. Communicative approaches to second language teaching and testing. Ontario: Ontario Ministry of Education, 1979.

Carpenter, C., & Hunter, J. Functional exercises: Improving overall coherence in ESL writing. TESOL Quarterly, 1981, 15, 425-434.

Carroll, J. B. Fundamental consideration in testing for English language proficiency of foreign students. In Testing the English proficiency of foreign students. Washington, D.C.: Center for Applied Linguistics. Reprinted in H. B. Allen and R. N. Campbell (Eds.), Teaching English as a second language: A book of readings. New York: McGraw-Hill, 1961.

Carroll, J. D. In S. S. Shiffmann, M. L. Reynolds, & F. W. Young, Introduction to multidimensional scaling. New York: Academic Press, 1981.

Clark, J. L. D. Foreign language testing: Theory and practice. Philadelphia: The Center for Curriculum Development, 1972.

Cronbach, L. J. Test validation. In R. L. Thorndike (Ed.)., Educational measurement. Washington, D.C.: American Council on Education, 1971.

Dubin, R., & Olshain, E. The interface of writing and reading. TESOL Quarterly, 1980, 14, 353-363.

Echternacht, G. TOEFL score ranges and theme writing samples. (Statistical Report SR-70-8). Princeton, N.J.: Educational Testing Service, 1970.

Engineers seek to improve their writing. In J. Landesman (Ed.), Simply stated, 1982, 3-4.

Freedman, S. W. How characteristics of student essays influence teachers' evaluations. Journal of Educational Psychology, 1979, 71, 328-338.

Godshalk, F. I., Swineford, F., & Coffman, W. E. The measurement of writing ability. New York: College Entrance Examination Board, 1966.

Hale, G. A., & Hinofotis, F. B. New directions in English language testing. Princeton, N.J.: Educational Testing Service, 1981, 1983.

Hill, S. S., Soppelsa, B. F., & West, G. K. Teaching ESL students to read and write experimental-research papers. TESOL Quarterly, 1982, 16, 333-347.

Johns, A. M. Cohesion in written business discourse: Some contrasts. The ESP Journal, Fall 1980, 1.

Johns, A. M. Necessary English: A faculty survey. TESOL Quarterly, 1981, 15, 51-57.

Jones, R. L. Testing: A vital connection. In J. K. Phillips (Ed.), The language connection: From the classroom to the world. Skokie, Ill.: National Textbook Co., 1977.

Kaplan, R. B. The anatomy of rhetoric: Prolegomena to a functional theory of rhetoric. Language and the Teacher: A Series in Applied Linguistics, 8. Philadelphia, Pa.: The Center for Curriculum Development, Inc., 1972.

Kaplan, R. B. A further note on contrastive rhetoric. Communication Quarterly, 1976, 24(2), 12-19.

Kaplan, R. B. Contrastive rhetoric: Some hypotheses. ITL, 1977, 39-40, 61-72.

Kaplan, R. B. Contrastive rhetorics: Some implications for the writing process. In I. Pringle, et al. (Eds.), Learning to write: First language, second language. London: Longman, 1982.

Kinneavy, J. A theory of discourse. Englewood Cliffs, N.J.: Prentice-Hall, 1971.

Kroll, B. A survey of the writing needs of foreign and American college freshmen. English Language Teaching Journal, 1979, 33, 219-226.

Landesman, J. (Ed.) Simply stated. Washington, D.C.: American Institutes for Research, August 1982.

Lay, N. D. S. Composing processes of adult ESL learners: A case study. TESOL Quarterly, 1982, 16, 406.

Lindstrom, M. W. Native speaker reactions to stylistic errors in writing: An error evaluation. Unpublished master's thesis, Colorado State University, Fort Collins, Co., 1981.

Lloyd-Jones, R. Skepticism about test scores. In K. L. Greenberg, H. S. Wiener, & R. A. Donovan (Eds.), Notes from the National Testing Network in Writing, October 1982. New York: Instructional Resource Center, City University of New York, 3, 9.

Moffett, J. Teaching the universe of discourse. Boston: Houghton Mifflin, 1968.

Morrow, K. E. Techiques of evaluation for a notional syllabus. Reading: Centre for Applied Language Studies, University of Reading, 1977. (Study commissioned by the Royal Society of Arts.)

Munby, J. Communicative syllabus design. Cambridge: Cambridge University Press, 1978.

1980 NAFSA directory of institutions and individuals in international educational interchange. Washington, D.C.: National Association for Foreign Student Affairs, 1980.

Odell, L. Defining and assessing competence in writing. In C. R. Cooper (Ed.), The nature and measurement of competency in English. Urbana, Ill.: National Council of Teachers of English, 1981.

Oller, J. W., Jr. Explaining the reliable variance in tests: The validation problem. In E. Briere and F. Hinofotis (Eds.), Concepts in language testing: Some recent studies. Washington, D.C.: TESOL, 1979, 61-74.

Ostler, S. E. A survey of academic needs for advanced ESL. TESOL Quarterly, 1980, 14, 489-502.

Pearson, C. R. Advanced academic skills in the low-level ESL class. TESOL Quarterly, 1981, 15, 413-423.

Pike, L. W. An evaluation of alternative item formats for testing English as a foreign language (TOEFL Research Report). Princeton, N.J.: Educational Testing Service, 1979.

Pitcher, B., & Ra, J. B. The relations between scores on the Test of English as a Foreign Language and the ratings of actual theme writing (Statistical Report 67-9). Princeton, N.J.: Educational Testing Service, 1967.

Quellmalz, E. S., Capell, F. J., & Chou, C. Effects of discourse mode and response mode on the measurement of writing competence. Journal of Educational Measurement, 1982, 19, 241-258.

Selinker, L., Todd-Trimble, M., & Trimble, L. Rhetorical function-shifts in EST discourse. TESOL Quarterly, 1978, 12, 311-320.

Swain, M. French immersion: Early, late or partial. Canadian Modern Language Review, 1978, 34(3), 577-585.

Taylor, B. P. Teaching ESL: A communicative, student-centered approach. Revised version of "Student initiative in the ESL class," presented at the 16th Annual ESL Convention in Honolulu, Hawaii, May 1982.

Troyka, L. Q. Looking back and moving forward. In K. L. Greenberg, H. S. Wiener, & R. A. Donovan (Eds.), Notes from the National Testing Network in Writing, October, 1982. New York: Instructional Resource Center, City University of New York.

Walz, J. C. Error correction techniques for the foreign language classroom. Washington, D.C.: Center for Applied Linguistics, 1982.

Weaver, B. T. Competency testing and writing program development. In K. L. Greenberg, H. S. Wiener, & R. A. Donovan (Eds.), Notes from the National Testing Network in Writing, October 1982. New York: Instructional Resource Center, City University of New York.

West, G. K. Engineering faculty evaluations of foreign graduate student writing. Gainesville, Fl.: University of Florida. Manuscript submitted for publication, 1982.

West, G. K., & Byrd, P. Technical writing required of graduate engineering students. Journal of Technical Writing and Communication, 1982, 12, 1-6.

Widdowson, H. G. An approach to teaching scientific English discourse. RELC Journal, 1974, 5.1, 27-40.

Wilson, K. M. GMAT and GRE aptitude test performance in relation to primary language and scores on TOEFL (Research Report 82-28). Princeton, N.J.: Educational Testing Service, 1982.

Appendices

A. TOEFL Research Questionnaire

B. Enrollment Data for Contributing Institutions in the Research Sample

C. Coordinators for the TOEFL Research Study

D. Cover Letters for Coordinators and Faculty Respondents

E. Distance Matrices by Disciplines

Appendix A

TOEFL Research Questionnaire

(Graduate Level Form)

TOEFL RESEARCH QUESTIONNAIRE

The main objective of this questionnaire is to obtain a valid description of the kinds of writing tasks that are required of students in your department during "typical" coursework.

Since our concern is with the expectations held for entry-level students, we are asking you to provide information that focuses on the kinds of writing that students are asked to produce during their first year of graduate school. Please do not supply information about writing skills that your students acquire during their educational experiences beyond the first year.

We assume that the writing tasks assigned to students are the same for both native and non-native speakers of English; therefore we ask you to respond to the questions in the context of all students in sections where we do not designate specifically that you respond from the standpoint of non-native speaking students. As you respond to questions about writing tasks, do not include remedial English or writing courses that students take in order to meet the minimum standards of regular coursework.

Your expert observations are valuable to us.

I. BACKGROUND INFORMATION

Institution _____

Department _____

Number of graduate students in your department who are not native speakers of English _____

Percentage of graduate students in your department who are not native speakers of English _____

Indicate the geographical area from which most of your non-native speaking graduate students come. (Check one)

____ Africa	____ Middle East
____ Canada	____ South and East Asia
____ Europe	____ Other (specify)
____ Latin America	_____

II. WRITING TASK DEMANDS

The following questions pertain to the kinds of writing that first-year graduate students in your department are expected to produce in all of their courses.

For each of the following writing tasks, indicate how frequently each task might be assigned to students per semester. (Circle one number for each task.)

Writing Tasks	Not at all	1 or 2 times per semester	3 to 6 times per semester	7 or more times per semester
1. Lab reports or descriptions of experiments conducted by the student or in class	0	1	2	3
2. Brief summaries of articles read (one or two pages)	0	1	2	3
3. Brief research papers (5 pages or less)	0	1	2	3
4. Longer research papers (6 pages or more)	0	1	2	3
5. Creative writing (fiction, poetry, or drama)	0	1	2	3
6. Expository or critical writing unrelated to lab or library research	0	1	2	3
7. Exams with essay questions	0	1	2	3
8. Group writing projects	0	1	2	3
9. Case studies	0	1	2	3
10. Other (specify)_____	0	1	2	3
11. Other (specify)_____	0	1	2	3

Indicate the degree of importance for each of the following items. (Circle one number for each.)

	Degree of Importance				
	Low		Moderate		High
1. How important is writing skill to success in your department?	1	2	3	4	5
2. How important is writing skill to success in your field after graduation?	1	2	3	4	5

Indicate the importance of each writing skill for success in the first year of graduate study:

3. Describing an object or apparatus	1	2	3	4	5
4. Describing a procedure	1	2	3	4	5
5. Arguing persuasively for a particular position	1	2	3	4	5
6. Organizing arguments drawing on several different sources	1	2	3	4	5
7. Summarizing factual information from a single source	1	2	3	4	5
8. Analyzing or criticizing ideas, excerpts, or passages	1	2	3	4	5
9. Expressing oneself creatively	1	2	3	4	5
10. Other (specify) _____	1	2	3	4	5
11. Other (specify) _____	1	2	3	4	5

III. CRITERIA USED TO EVALUATE WRITTEN ASSIGNMENTS

The following is a list of features of written assignments. After first reviewing the full list, consider the extent to which grades for written assignments in your courses for beginning graduate students are influenced by each feature. By circling the appropriate number, rate each feature for the degree of importance you place on it.

		Degree of Importance				
	General Features:	Low		Moderate		High
1.	Correctness of punctuation/spelling	1	2	3	4	5
2.	Quality of sentence structure	1	2	3	4	5
3.	Size of vocabulary	1	2	3	4	5
4.	Appropriateness of vocabulary usage	1	2	3	4	5
5.	Quality of paragraph organization	1	2	3	4	5
6.	Quality of overall paper organization	1	2	3	4	5
7.	Quality of content	1	2	3	4	5
8.	Development of ideas	1	2	3	4	5
9.	Overall writing ability	1	2	3	4	5
	Meeting constraints of particular assignments:					
10.	Student addresses topic adequately and directly	1	2	3	4	5
11.	Student adopts a tone, attitude, or style appropriate to the audience	1	2	3	4	5
12.	Student appropriately meets assignment requirements as specified by instructor	1	2	3	4	5
13.	Other (Specify) _____	1	2	3	4	5
14.	_____	1	2	3	4	5

15. Which of the features (1-14) listed above are most and least important? (Specify one number from the above list for each)

Most important _____ Least important _____

16. Do you use the same standards to evaluate the writing of native and non-native speakers of English?

YES _____ NO _____

If NO, please circle the numbers (from the list above) of the features you evaluate more leniently for non-native speaking students:

1 2 3 4 5 6 7 8 9 10 11 12 13 14

IV. WRITING PROBLEMS OF NATIVE AND NON-NATIVE SPEAKING GRADUATE STUDENTS

This section asks you to make two judgments about each of the features of written assignments:

1. In column A, indicate the extent to which each feature is a problem for native speakers of English. (Circle)
2. In column B, indicate the extent to which each feature is a problem for non-native speakers of English. (Circle)

A: Problems of Native Speaking Students				B: Problems of Non-Native Speaking Students		
Minor or Rare ↓	Moderate or Occasional ↓	Large or Frequent ↓	General Features:	Minor or Rare ↓	Moderate or Occasional ↓	Large or Frequent ↓
1	2	3	1. Correctness of punctuation/spelling	1	2	3
1	2	3	2. Quality of sentence structure	1	2	3
1	2	3	3. Size of vocabulary	1	2	3
1	2	3	4. Appropriateness of vocabulary usage	1	2	3
1	2	3	5. Quality of paragraph organization	1	2	3
1	2	3	6. Quality of overall paper organization	1	2	3
1	2	3	7. Quality of content	1	2	3
1	2	3	8. Development of ideas	1	2	3
1	2	3	9. Overall writing ability	1	2	3
			Meeting contraints of particular assignments:			
1	2	3	10. Student addresses topic adequately and directly	1	2	3
1	2	3	11. Student adopts a tone, attitude, or style appropriate to the audience	1	2	3
1	2	3	12. Student appropriately meets assignment requirements as specified by instructor	1	2	3
1	2	3	13. Other (Specify)_____	1	2	3
1	2	3	14. _____	1	2	3

V. A WRITING SAMPLE IN THE ADMISSIONS PROCESS

1. Does your institution administer a writing sample at the time of admissions?

   YES ____ NO ____ (Skip to Question 3 if your answer is NO)

2. If your institution uses a writing sample, for what purpose? (Check as many as apply)

Purposes	For Native Speaking Students	For Non-Native Speaking Students
as an essential admissions criterion	____	____
for admissions decisions on borderline cases	____	____
for placement in courses	____	____
for campus job placement	____	____
other (specify) _____	____	____

3. Beyond the admissions criteria you are now using, would any other additional information about non-native speaking applicants be helpful to your department or institution?

   YES ____ NO ____ (If YES, specify): _____

   _____

4. Would a writing sample on TOEFL be useful to you?

   YES ____ NO ____

5. If a writing sample were included on TOEFL, for what purposes would you use it? (Check as many as apply)

   ____ as an essential admissions criterion

   ____ for admissions decisions on borderline cases

   ____ for placement in courses

   ____ for campus job placement

   ____ other (specify) _____

6. How would you prefer to have the TOEFL writing sample scored? (Check one)

   ____ a single score for overall impression of writing ability

   ____ separate scores for:

   a. content, quality of ideas
   b. grammatical/mechanical errors
   c. organization and coherence in the writing

Additional comments you would like to make: _____

_____

_____

VI. EXAMPLES OF TOPICS FOR WRITING SAMPLES

The following is a list of examples of possible topics for a writing sample for non-native speaking applicants (for use in admissions or placement, at the beginning of graduate work). Before you indicate your preferences for topics, think carefully about:

1. the information that you want to obtain from the sample, and

2. whether or not the topic will evoke a writing sample that will provide that information.

The following pages contain two examples for each of several types of topics that might be used to elicit writing samples. Labels are supplied for the topic types in order to help you categorize them; they do not imply a formal taxonomy, but have been provided as descriptions. Please respond to the type of topic rather than to the specific examples.

For each of the following types of topics, you will be asked to indicate its degree of acceptability for a topic for a writing sample that might be used as part of the admissions process for beginning graduate students. At the end of the presentation of topic types, you will be asked to indicate the types you think are most appropriate.

Types of Topics to Elicit Writing Samples

Type A. Essay--Personal

- People choose their academic majors (fields of study) for a variety of reasons. Describe your reasons for choosing your academic major.

- People always find fault with the other generation, whether older or younger. What are some characteristics that you admire most about your generation?

Questions of this type are: Acceptable/good, Acceptable/fair, Unacceptable.
(circle one)

If unacceptable, explain why: _____

_____

_____

Type B. Description--Sequential or Chronological

- Another student asks for your advice on how to study for a big test. Describe a step-by-step plan that you would recommend to him/her, beginning a week before the test.

- Choose a job you did in the past. Select one or two of the most important tasks you performed in this job. For each task, describe the order in which you performed the duties required to accomplish the task during a typical day (or week).

Questions of this type are: Acceptable/good, Acceptable/fair, Unacceptable.
(circle one)

If unacceptable, explain why: _____

_____

_____

Type C. Description--Spatial or Functional

- Think of a toy that you or someone you knew enjoyed as a child. How would you describe it? Briefly explain how the toy was used in play.

- Someone you know has never seen a school or public library. Describe such a library, and briefly explain how it can be used.

Questions of this type are: Acceptable/good, Acceptable/fair, Unacceptable.
(circle one)

If unacceptable, explain why: _____

_____

_____

Types of Topics to Elicit Writing Samples (cont.)

Type D. Compare/Contrast

- Advances in technology bring advantages and disadvantages. How does life in a highly technological society differ from life in a society that has little technology? Select one or two advantages as well as one or two disadvantages that you have observed, and explain them.

- Being a student in a foreign country has its advantages and disadvantages. Select one advantage and one disadvantage of studying in a foreign country, and discuss them briefly.

Questions of this type are: Acceptable/good, Acceptable/fair, Unacceptable.
(circle one)

If unacceptable, explain why: _____

_____

_____

Type E. Compare/Contrast Plus Take a Position

- Living in a country with advanced technology has its advantages; however, life in a country with little technology also has unique characteristics. Describe one or two of the advantages of living in a country with advanced technology, as well as one or two of the advantages of living in a country with little technology. Decide in which country you would prefer to live, and briefly explain your reasons.

- In their choice of professions, some people prefer to work with other people, whereas some people prefer to work by themselves. Describe one or two of the advantages of working with others, as well as one or two of the advantages of working alone. Decide whether you would prefer working with others or alone during most of your work day, and briefly explain your reasons.

Questions of this type are: Acceptable/good, Acceptable/fair, Unacceptable.
(circle one)

If unacceptable, explain why: _____

_____

_____

Types of Topics to Elicit Writing Samples (cont.)

Type F. Extrapolation

- You have been assigned to the task of choosing three objects to be placed in a time capsule which will be buried today and unearthed one hundred years from today. Your task is to choose items that represent the life of people in your native country in the 1980's. When these objects are unearthed, the people who find them should get from them a feeling of what life is like in your country today. Give careful thought to your choices, and in a well-organized essay, describe (or name) the objects you have chosen and explain your reasons for choosing each of them.

- Everyone occasionally thinks about what life would be like in our children's or grandchildren's time. What kind of world would you like for your grandchildren? Describe three characteristics of the world you would like for them to live in, and explain your reasons for choosing each characteristic.

Questions of this type are: Acceptable/good, Acceptable/fair, Unacceptable.
(circle one)

If unacceptable, explain why: _____

_____

_____

Type G. Argumentation with Audience Designation

- Imagine that a country with limited coal and oil resources is thinking of installing two or three nuclear power plants. State the arguments that are either in favor of, or against, the building of the plants. Direct your arguments to an audience that is a government committee composed of individuals who do not have any technical expertise.

- Two routes for a highway are being considered. Route A would be four miles shorter than Route B, and would go through the center of town and provide better access to the downtown area. However, Route A would destroy many people's homes. Route B would go through parkland that contains a wildlife sanctuary at the edge of town. Both choices are undesirable, but imagine that you have chosen to argue for one of the two routes. Choose the route that you prefer, and write your argument for presentation to the town council that is responsible for making the decision. If you choose Route A, imagine that you work for a company in the downtown area that wants Route A built. If you choose Route B, imagine that you belong to a homeowners' organization that opposes Route A.

Questions of this type are: Acceptable/good, Acceptable/fair, Unacceptable.
(circle one)

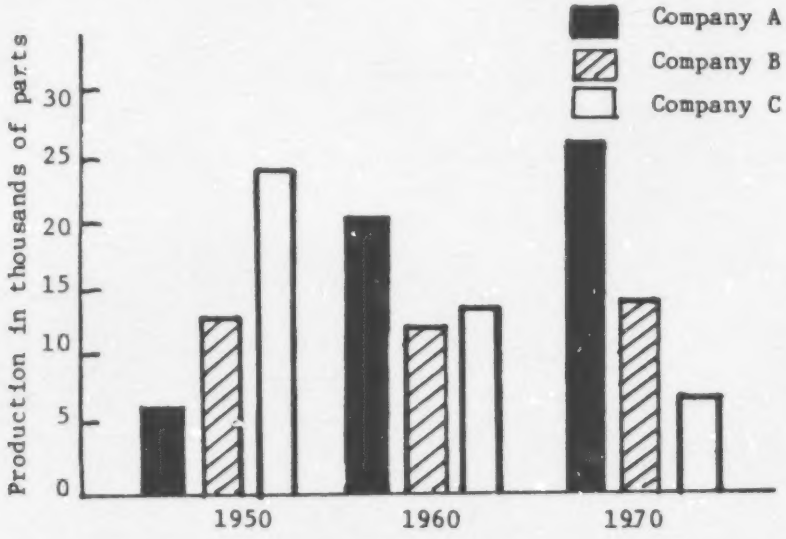
If unacceptable, explain why: _____

_____

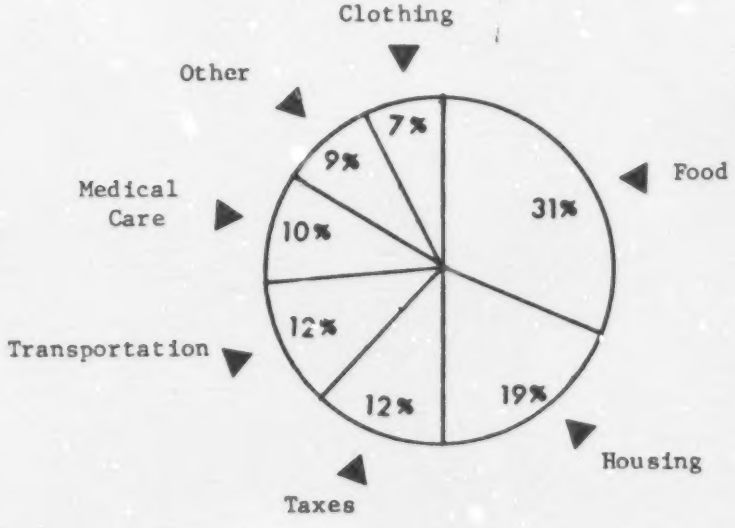
_____

Type H. Describe and Interpret a Graph, Chart, etc.

- The bar graph shows the numbers of automobile parts produced by company A, company B, and company C in three different years. What does this graph tell you? Write a few sentences that convey the information in the graph.



- The pie chart shows how one family spends their annual income of $12,600. Each part of the chart gives the percentage spent by this family on a major expense item. What does this chart tell you? Write a few sentences that convey the information in the chart.



Questions of this type are: Acceptable/good, Acceptable/fair, Unacceptable.
(circle one)

If unacceptable, explain why: _____

_____

_____

Type I. Summarize a Passage

Read the following passage to understand the ideas in it, even though you may not agree with the point of view expressed by the author.

> In one century, we have come to know more about the sea than we learned during all preceding history. We now understand that the ocean influences the broad cycles of climate and weather, that it absorbs most of the sunlight that strikes the earth and creates most of the oxygen we breathe, that it absorbs huge amounts of carbon dioxide, and that it is the source of most fresh water.
>
> We have also learned that in the great spans of time measured by geology we are relative newcomers. However, we are causing in our lifetimes changes as far-reaching as those effected by the geological events of the ages that preceded us.
>
> We join by canals waters that have been separated for millions of years. We create dry land out of seafloor and carve harbors from marshlands that were tens of thousands of years in the making. In a matter of just a few decades, we have inadvertently spread films of oil and chemicals upon the very surface that supplies life-giving oxygen and fresh water.
>
> We also know that we have set in motion cycles that may drastically alter the ocean as we know it today. The ocean realm is vast and diverse--but also fragile. Oil spills, overfishing, dumping of garbage, chemicals, and radioactive substances have all diminished the health of the ocean. But much of the wilderness character of a century ago remains, and with care and an understanding of the value of the sea, that character can be preserved.
>
> One of the most significant things learned in this century, I believe, is the importance of the sea to our well-being and survival, the necessity of an ocean wilderness to the health of the world's environment. We have learned that the ocean greatly affects all living things, from the deep-sea fish to the desert mouse.

Write a brief summary of the preceding passage, describing the main ideas. Use no more than five sentences to show that you understand the main ideas of the passage.

- Read the following passage to understand the ideas in it, even though you may not agree with the point of view expressed by the author.

> If we are not crazy, and we will assume we are not, why is it that humanity seems determined to spiral ever faster towards self-made destruction? Perhaps the human species is just a ghastly biological blunder, having evolved beyond a point at which it can thrive in harmony with itself and the world around it. That must be a possibility. In recent years scientists, playwrights, and others have attempted to explain why mankind finds itself faced with the prospect of self-destruction. The idea was proposed that man is unswervingly aggressive, an idea that was given scientific credence by proponents such as Professor Raymond Dart and Dr. Konrad Lorenz, and successfully popularized by Robert Ardrey.
>
> The core of the aggression argument says that because we share a common heritage with the animal kingdom we must possess and express an aggressive instinct. And the notion is elaborated with the suggestion that at some point in our evolutionary history we gave up being vegetarian ape-like creatures and became killers, with a taste not only for prey animals but also for each other. It makes a good gripping story. More important, it absolves society from attempting to rectify the evil in the world. But it is fiction--dangerous fiction.
>
> Unquestionably we are part of the animal kingdom. And, yes, at some point in our evolution we departed from the common dietary habits of the large primates and took to including a significant amount of meat in our menu. But a serious biological interpretation of these facts does not lead to the conclusion that, because once the whole of the human race indulged in hunting as part of its way of life, killing is in our genes. Indeed, I would argue that the opposite is true, that humans could not have evolved in the remarkable way in which we undoubtedly have unless our ancestors were strongly cooperative creatures. The key to the transformation of a social ape-like creature into a cultural animal living in a highly structured and organized society is sharing: the sharing of jobs and the sharing of food. Meat eating was important in propelling our ancestors along the road to humanity, but only as part of a package of socially-oriented changes involving the gathering of plant foods and sharing the spoils.

> This being so, why then is recent human history characterized by conflict rather than compassion? I suggest that the answer to this question lies in the change in way of life from hunting and gathering to farming, a change which began about ten thousand years ago and which involved a dramatic alteration in the relationship people had both with the world around them and among themselves. The hunter-gatherer is a part of the natural order; a farmer necessarily distorts that order. But more important, stable farming communities have the opportunity to accumulate possessions, and having done so they must protect them. This is the key to human conflict, conflict that is greatly exaggerated in the highly materialistic world in which we now live.

Write a brief summary of the preceding passage, describing the main ideas. Use no more than five sentences to show that you understand the main ideas of the passage.

Questions of this type are: Acceptable/good, Acceptable/fair, Unacceptable.
(circle one)

If unacceptable, explain why: _____

_____

_____

Type J. Summarize a Passage Plus Analyze/Assess the Point of View

- Read the following passage to understand the ideas in it, even though you may not agree with th point of view expressed by the author.

  (Here the student would be presented with the same passage as in Type I, beginning with, "If we are not crazy....")

Write a summary of the preceding passage, describing the main ideas. Use no more than five sentences to show that you understand the main ideas of the passage.

When you have completed your summary, write a brief analysis of the ideas in the passage. You may include your own ideas as well as those you find in the passage.

- Read the following passage to understand the ideas in it, even though you may not agree with the point of view expressed by the author.

> Intimately related to the energy issue is size of population. There is a simple equation that says that, with limited resources to exploit, the life span of modern human society is inversely related to the number of people in that society. In other words, the more people there are, the sooner resources are used up. With the exception of the sun's rays, there is no resource that is not limited in some important way. True, future technologies are certain to exploit materials in ways not dreamed of at the moment. And it is possible that new technologies could guide the human species through original material societies for many thousands of years. But the key to successful exploitation of new material resources is that the process should be unhurried, so that the maximum potential should be squeezed out of the material world. With the population due to double in the next thirty years, and to double again in less than thirty years after that, there is no prospect of such an unhurried approach. Who can stand up and confidently say that the rate of innovation will match the rocketing demand? Currently the gap is large, and it is widening minute by minute.
>
> One obvious solution to the problem of a large world population is to have a small one instead. It is quite reasonable to propose that instead of the current four thousand million, a population of half that would be appropriate for the long-term survival of a well-fed world population. Such a prospect is a very long way off, even if every country agreed on its good sense. But, as the 1974 World Population Conference demonstrated all too clearly, global control of population is fraught with even more snares than is the problem of energy. Quite apart from the social and cultural barriers that continue to thwart national population plans, international politics could be as much a barrier to global population control as a vehicle for its adoption.

> For instance, at the 1974 conference in Bucharest, proposals by the rich nations for cutting down the rate of population growth were interpreted by a number of the poorer nations as merely another facet of imperialism--population imperialism. Who can blame them? Experience has taught these nations to be wary of the intentions of the affluent world. Unless the accumulated layers of suspicion that separate nations of different economic status and different political ideology can be cut through and stripped away, however, the path for global decision-making will remain blocked. And if that path does remain blocked, the threat to the continued survival of mankind becomes very real indeed.

Write a summary of the preceding passage, describing the main ideas. Use no more than five sentences to show that you understand the main ideas of the passage.

When you have completed your summary, write a brief analysis of the ideas in the passage. You may include your own ideas as well as those you find in the passage.

Questions of this type are: Acceptable/good, Acceptable/fair, Unacceptable.
(circle one)

If unacceptable, explain why: _____

_____

_____

* * * * * * * * * * *

As you review the entire list of sample types, which types of topics are most appropriate? Using the letters from the preceding list, list up to <u>five</u> preferred types, in order, starting with the most appropriate: __ __ __ __ __.
Please list any additional topic types that you would like to recommend.

Comments:

Thank you very much for your efforts and information!

Appendix B

Enrollment Data for Contributing Institutions in the Research Sample

Enrollment Data for Contributing Institutions
in the Research Sample[a]

Region	Institution	Private/Public[b]	No. of Foreign Students	% of Foreign Students	Total Enrollment
Northeast					
	Boston University	1	2,015	7.2	27,796
	Columbia University	1	2,591	10.9	23,741
	Harvard University	1	1,645	10.4	15,821
	Northeastern University	1	2,081	5.0	41,343
	SUNY, Buffalo	2	1,749	8.0	21,759
	University of Pennsylvania	1	1,686	7.5	22,611
Midwest					
	Indiana University	2	1,772	5.6	31,877
	Ohio State University	2	1,832	3.4	54,533
	Purdue University	2	1,196	3.6	32,978
	Southern Illinois University	2	1,566	6.7	23,236
	University of Illinois	2	1,521	4.4	34,791
	University of Kansas	2	1,585	6.5	24,465
	University of Michigan	2	2,104	5.8	36,311
	University of Minnesota	2	1,891	2.7	68,907
	University of Wisconsin	2	2,280	5.5	41,349
Pacific					
	California State U., Fresno	2	1,163	7.8	14,911
	Oregon State University	2	1,053	6.0	17,682
	San Francisco State University	2	982	c	c
	Stanford University	1	1,502	11.1	13,592
	University of California, Los Angeles	2	1,990	5.8	34,023
	University of Hawaii, Manoa	2	1,102	5.4	20,319
	University of San Francisco	1	1,463	24.0	6,086
	University of Southern California	1	3,456	12.6	27,471
South/ Southwest					
	Florida International University	1	1,112	9.5	11,673
	George Washington University	1	1,898	9.1	20,944
	Harvard University	1	1,541	13.6	11,321
	University of Houston	1	1,789	5.8	30,693
	University of Miami	1	1,803	11.5	15,715
	University of Oklahoma	2	1,611	7.5	21,615
	University of Southwest Louisiana	2	1,535	11.1	13,853
	University of Texas, Austin	2	1,880	4.1	46,148

[a]Figures obtained from Open Doors: 1980/81 (Boyan, 1981); data for three Canadian institutions (McGill, U. of Toronto, U. of Waterloo) were not available in this publication (locations are on main campuses unless otherwise noted)

[b]1 = Private, 2 = Public

[c]Percent foreign and total enrollment figures not reported in Open Doors: 1980/81.

Appendix C

Coordinators for the TOEFL Research Study

Coordinators - TOEFL Research Study

Academic Writing Skills and Tasks

Pacific

Mrs. Carol Munshower
International Student Counseling Office
California State University - Fresno

Ms. Ann Larson
English Language Institute
Oregon State University

Dr. Harry Freeman, Coordinator
Office of International Student Programs
San Francisco State University

Ann Fletcher
Office of Graduate Admissions
Stanford University

Dr. Carol Hartzog
UCLA Writing Program
University of California - Los Angeles

Mrs. Joyce Settle
Arts & Sciences
Student Services and Special Programs
University of Hawaii

Professor Phil Carleton
World English Center
University of San Francisco

Ms. Mary Berg
Acting Director, International Admissions
University of Southern California

South/Southwest

Mr. John A. Bonanno
Director, International Student Services
Florida International University

Dr. Patricia J. McMillen
International Services
George Washington University

Mrs. Adrienne W. Price
Director of Admissions
Howard University

Dr. Jack Burke
Director, International Student Services
University of Houston

Ms. Laura L. Morgan
International Student Services
University of Miami

Dr. Eddie Smith
Dean of Admissions
University of Oklahoma

Mr. Bruno E. Masotti
Director, International Office
University of S.W. Louisiana

Dr. Joe W. Neal
Director, International Office
University of Texas, Austin

Coordinators - TOEFL Research Study

Academic Writing Skills and Tasks

Canada

Ms. Peggy Sheppard
Director, Admissions Office
McGill University

Ms. Joan Mulveney
Associate Registrar of Admissions
University of Toronto

Ms. Helen Ben Susan
Associate Registrar
University of Waterloo, Canada

Coordinators - TOEFL Research Study

Academic Writing Skills and Tasks

Northeast

Mr. Theodore Dieffenbacher
International Student Office
Boston University

Dr. Louis Levi
American Language Program
Columbia University

Mr. C. John Friesman
Admissions Office
Graduate School of Arts & Sciences
Harvard University

Dean Paul Krueger
English Language Center
Northeastern University

Dr. Stephen C. Dunnett
Director, Intensive English Language Inst.
SUNY at Buffalo

Mr. Clay Naff
Office of International Programs
University of Pennsylvania

Midwest

Mr. Marlin Howard
Center for English Language Training
Indiana University

Dr. Jules Lapidus
Graduate School
Ohio State University

Mrs. Margery Ismail
Director of International Student Services
Purdue University

Ms. Beverly Walker
International Services
Southern Illinois University

Miss Lydia Salonga
Admissions Processing Center
University of Illinois

Dr. Clark Coan
Foreign Student Office
University of Kansas

Dr. Dan Douglas
Director of Testing
English Language Institute
University of Michigan

Dr. Michael Paige
International Student Office
University of Minnesota

Dr. Robert M. Bock
Dean, Graduate School
University of Wisconsin (Madison)

Appendix D

Cover Letters to Coordinators

and Faculty Respondents

EDUCATIONAL TESTING SERVICE PRINCETON, N.J. 08541

609-921-9000
CABLE-EDUCTESTSVC
DIVISION OF EDUCATIONAL
RESEARCH AND EVALUATION

October 12, 1982

*

Thank you for your enthusiastic response to the TOEFL Survey of Academic Writing Tasks and Skills. As the coordinator at your institution, you are vital to the success of this research project.

This package includes cover letters and questionnaires for you to distribute to the faculty respondents you select, as well as your copy of these materials. For your information, the white version of the questionnaire is designed for distribution to one faculty respondent who teaches regular freshman undergraduate English (or literature). The grey version of the questionnaire is designed for faculty respondents from the several graduate departments we have selected for this sample. You may find that a review of the questions will aid you in selecting the faculty respondents.

As the coordinator, please choose one faculty member respondent from each of the following graduate departments: business (MBA level), chemistry, psychology, computer science, electrical engineering, and civil engineering. Also select one faculty member respondent from the regular undergraduate English (or literature) department. If your institution does not have all of these departments, please do not substitute a different department. For this preliminary study, our sample has been restricted to these departments because they represent fields in which a large proportion of international students in the U. S. and Canada are enrolled. When you return the completed questionnaires to us, please add a note to the package that indicates which departments are not at your institution.

* The salutation and mailing address were personalized for each coordinator.

The primary objective of this research is to identify and describe the various writing task demands that are necessary for successful academic work during the first year of undergraduate and graduate study for non-native speakers of English. In addition, we are asking whether or not the writing tasks and skills that are required of non-native speakers are parallel to the writing task demands that are expected of native speakers of English. We also are seeking to determine whether faculty think that the inclusion of a writing sample on the TOEFL examination would serve as a useful supplement to admissions (and placement) information about incoming international students. Finally, some of the questions on the survey instrument focus on the appropriateness of the kinds of writing tasks, or "topic types," that might be used as a writing sample in the admissions process. Depending on the results of this survey, we may conduct further research on the parameters, scoring, cultural considerations, and implementation of a writing sample for non-native speakers of English.

We are relying on your judgment in selecting faculty members who are especially familiar with the academic writing tasks and skills that your institution requires of both native and non-native speakers of English. Your identification of these experienced faculty members will enable us to obtain more valid, high quality data that will be used to determine further research and program directions. In our reporting of results, you can be assured that the names of individuals in your institution will not be identified with your data, although you and your institution will be acknowledged in our report.

A few details--a postage prepaid, self-addressed mailing envelope is enclosed in this package for your convenience. If you should need to ship the materials by some form of express mail, please let us know the charges, and we will reimburse you. Please return all materials by November 1.

The last page of each questionnaire is a form that each respondent should complete in order to obtain the $25 payment. We request a social security number from U. S. respondents, not for tax reporting, but because it is required by our auditors. As coordinator, please remove this last page of each questionnaire to preserve the respondent's anonymity, and return these pages together with the form for your payment in the same package. Unfortunately, due to mailing and procedural delays, the checks may take a month to arrive--don't anticipate them any sooner.

If you have any comments or questions, feel free to call us collect at (609) 921-9000, asking for the extension we are providing with our signatures. We also will welcome calls from your colleagues whom you have selected as respondents.

Your contribution to the success of this study is of enormous value to us, and we very much appreciate your support.

Sincerely,

Brent Bridgeman
Extension 5767

Sybil Carlson
Extension 5615

Roberta Kline
Extension 5782

BB:SC:RK:jaf

Enclosures

EDUCATIONAL TESTING SERVICE PRINCETON, N.J. 08541

609-921-9000
CABLE-EDUCTESTSVC

DIVISION OF EDUCATIONAL
RESEARCH AND EVALUATION

October 12, 1982

Dear Colleague,

We very much appreciate your willingness to respond to the TOEFL Survey of Academic Writing Tasks and Skills. The information you provide will be of great value to us.

The Test of English as a Foreign Language (TOEFL) is an examination designed to measure the English proficiency of people whose native language is not English. The TOEFL is administered on regularly scheduled dates at test centers established throughout the world by Educational Testing Service (ETS). More than 2,000 colleges and universities in the United States and Canada, as well as in other countries where English is the language of instruction, require their applicants who are not native speakers of English to submit scores obtained under one of these programs. In addition, many government agencies, scholarship programs, and other institutions use the test. Each institution or agency that uses TOEFL scores decides for itself what scores are acceptable. The TOEFL office does not determine passing or failing scores.

The TOEFL program conducts an ongoing research program related to the test, with the objectives of maintaining instruments that are of high quality and of improving the tests and services offered to our users. We have selected your institution and approximately 35 other institutions in the United States and Canada for inclusion in our sample because they enroll a substantial proportion of non-English speaking students. We also have selected several specific departments for our sample, including yours, as departments that typically enroll large numbers of these students. You have been contacted by a campus coordinator, who has been instrumental in selecting one faculty member from each department. You have been identified as a faculty member who is especially familiar with the writing tasks and skills that your institution requires of both native and non-native speakers of English. Your responses, based on your extensive experience, will enable us to obtain valid, high quality data that will be used to determine further research and program directions. In the reporting of results, you can be assured that your name will not be identified with your data, although you and your institution will be acknowledged in our report.

The primary objective of this research is to identify and describe the various writing task demands that are necessary for successful academic work during the first year of undergraduate and graduate study for non-native speakers of English. In addition, we are asking whether or not the writing tasks and skills that are required of non-native speakers are parallel to the writing task demands that are expected of native speakers of English. We also are seeking to determine whether the inclusion of a writing sample on the TOEFL examination would serve as

a useful supplement to admissions (and placement) information about incoming international students. Finally, some of the questions on the survey instrument focus on the appropriateness of the kinds of writing tasks, or "topic types," that might be used as a writing sample in the admissions process. Depending on the results of this study, we may conduct further research on the parameters, scoring, cultural considerations, and implementation of a writing sample for non-native speakers of English.

We need to meet a tight deadline for summarizing and reporting this survey data; therefore we would appreciate your completing and returning the questionnaire to your coordinator as promptly as possible. Your institution's coordinator has been asked to return the questionnaire by November 1. For your efforts in responding to the questionnaire, we will be paying you a $25 honorarium. The form on the last page of the questionnaire will be used for processing your payment. We request a social security number, not for tax reporting, but because it is required by our auditors. Your coordinator will remove this page before remitting it to us, in order to preserve the anonymity of the information you supply on the questionnaire. Unfortunately, due to mailing and procedural delays, the checks may take a month to arrive--don't anticipate them any sooner.

The last page of this letter includes a form that requests information about the admissions criteria that are used by your department. Please supply this information if you are familiar with your department's admissions process; if you do not have this information, simply leave this form blank, since this data is useful, but not critical, to the survey.

If you have any comments or questions, please feel free to call us collect at (609) 921-9000, asking for the extension we are providing with our signatures.

Your contribution to the success of this study is of enormous value to us, and we very much appreciate your efforts.

Sincerely.

Brent Bridgeman

Brent Bridgeman
Extension 5767

Sybil Carlson

Sybil Carlson
Extension 5615

Roberta Kline

Roberta Kline
Extension 5782

Appendix E

Distance Matrices by Disciplines

DISTANCE MATRIX: ENGLISH

	A	B	C	D	E	F	G	H	I	J
A	0.0	0.7742	0.9063	0.7188	0.8125	0.8438	1.0938	1.1071	1.0370	0.9259
B	0.7742	0.0	0.3548	0.7419	0.7742	0.7097	0.7742	0.9259	0.8077	1.0385
C	0.9063	0.3548	0.0	0.8750	0.9063	0.9375	0.9375	0.6071	0.7778	1.0741
D	0.7188	0.7419	0.8750	0.0	0.2813	0.6250	1.0625	1.2857	1.2963	0.9630
E	0.8125	0.7742	0.9063	0.2813	0.0	0.5938	0.8438	1.2857	1.2963	0.9259
F	0.8438	0.7097	0.9375	0.6250	0.5938	0.0	0.6875	1.1786	1.0370	0.8519
G	1.0938	0.7742	0.9375	1.0625	0.8438	0.6875	0.0	0.7857	0.6296	0.7407
H	1.1071	0.9259	0.6071	1.2857	1.2857	1.1786	0.7857	0.0	0.6296	1.0000
I	1.0370	0.8077	0.7778	1.2963	1.2963	1.0370	0.6296	0.6296	0.0	0.4000
J	0.9259	1.0385	1.0741	0.9630	0.9259	0.8519	0.7407	1.0000	0.4000	0.0

DISTANCE MATRIX: MBA (BUSINESS)

	A	B	C	D	E	F	G	H	I	J
A	0.0	0.7143	0.8214	0.7500	0.9643	0.6786	0.8929	0.7692	0.5833	0.8636
B	0.7143	0.0	0.6071	0.5357	0.7500	0.5357	0.6786	0.5385	0.7083	0.7727
C	0.8214	0.6071	0.0	0.7857	1.0714	0.6429	1.0714	0.7692	0.6250	0.9091
D	0.7500	0.5357	0.7857	0.0	0.5000	0.6429	0.5000	0.4231	0.5000	0.5455
E	0.9643	0.7500	1.0714	0.5000	0.0	0.6429	0.2857	0.5000	0.6250	0.5000
F	0.6786	0.5357	0.6429	0.6429	0.6429	0.0	0.6429	0.6538	0.5000	0.8182
G	0.8929	0.6786	1.0714	0.5000	0.2857	0.6429	0.0	0.4231	0.7083	0.3182
H	0.7692	0.5385	0.7692	0.4231	0.5000	0.6538	0.4231	0.0	0.5833	0.5455
I	0.5833	0.7083	0.6250	0.5000	0.6250	0.5000	0.7083	0.5833	0.0	0.5909
J	0.8636	0.7727	0.9091	0.5455	0.5000	0.8182	0.3182	0.5455	0.5909	0.0

DISTANCE MATRIX: CIVIL ENGINEERING

	A	B	C	D	E	F	G	H	I	J
A	0.0	0.4000	0.5600	0.5600	0.4800	0.2800	0.6400	0.7917	0.6190	0.5217
B	0.4000	0.0	0.3846	0.6538	0.7308	0.4231	0.5000	0.6800	0.5238	0.5833
C	0.5600	0.3846	0.0	0.8077	0.8077	0.4231	0.5769	0.6400	0.5714	0.5833
D	0.5600	0.6538	0.8077	0.0	0.2308	0.6154	0.3846	0.6800	0.6190	0.5833
E	0.4800	0.7308	0.8077	0.2308	0.0	0.5385	0.4615	0.6000	0.6190	0.5833
F	0.2800	0.4231	0.4231	0.6154	0.5385	0.0	0.4615	0.7200	0.5238	0.4583
G	0.6400	0.5000	0.5769	0.3846	0.4615	0.4615	0.0	0.5600	0.5238	0.4583
H	0.7917	0.6800	0.6400	0.6800	0.6000	0.7200	0.5600	0.0	0.9000	0.8261
I	0.6190	0.5238	0.5714	0.6190	0.6190	0.5238	0.5238	0.9000	0.0	0.0952
J	0.5217	0.5833	0.5833	0.5833	0.5833	0.4583	0.4583	0.8261	0.0952	0.0

DISTANCE MATRIX: ELECTRICAL ENGINEERING

	A	B	C	D	E	F	G	H	I	J
A	0.0	0.7826	0.8696	.3478	0.5652	0.5217	0.6957	0.8182	0.7500	0.8500
B	0.7826	0.0	0.4348	0.6957	0.9130	0.7826	0.8696	0.5909	1.3500	1.3500
C	0.8696	0.4348	0.0	0.6957	0.8261	0.6087	0.8696	0.5909	1.0000	1.1000
D	0.3478	0.6957	0.6957	0.0	0.3043	0.4348	0.6087	0.8636	0.8500	1.0500
E	0.5652	0.9130	0.8261	0.3043	0.0	0.4783	0.5652	1.0000	0.8000	0.9000
F	0.5217	0.7826	0.6087	0.4348	0.4783	0.0	0.3478	0.7273	0.6500	0.6500
G	0.6957	0.8696	0.8696	0.6087	0.5652	0.3478	0.0	0.8636	0.6000	0.6000
H	0.8182	0.5909	0.5909	0.8636	1.0000	0.7273	0.8636	0.0	1.1000	1.2000
I	0.7500	1.3500	1.0000	0.8500	0.8000	0.6500	0.6000	1.1000	0.0	0.3000
J	0.8500	1.3500	1.1000	1.0500	0.9000	0.6500	0.6000	1.2000	0.3000	0.0

DISTANCE MATRIX: PSYCHOLOGY

	A	B	C	D	E	F	G	H	I	J
A	0.0	0.5417	0.5417	0.5417	0.5000	0.5417	0.6667	0.7391	0.6667	0.5000
B	0.5417	0.0	0.3333	0.6667	0.5417	0.4167	0.6250	0.9565	0.6667	0.7273
C	0.5417	0.3333	0.0	0.5833	0.5417	0.6667	0.5417	0.7826	0.6190	0.6364
D	0.5417	0.6667	0.5833	0.0	0.2917	0.4167	0.4583	0.6087	0.6667	0.5909
E	0.5000	0.5417	0.5417	0.2917	0.0	0.4583	0.5000	0.5652	0.6667	0.5000
F	0.5417	0.4167	0.6667	0.4167	0.4583	0.0	0.7917	0.8696	0.7619	0.7273
G	0.6667	0.6250	0.5417	0.4583	0.5000	0.7917	0.0	0.6522	0.7143	0.6364
H	0.7391	0.9565	0.7826	0.6087	0.5652	0.8696	0.6522	0.0	0.4762	0.3182
I	0.6667	0.6667	0.6190	0.6667	0.6667	0.7619	0.7143	0.4762	0.0	0.4286
J	0.5000	0.7273	0.6364	0.5909	0.5000	0.7273	0.6364	0.3182	0.4286	0.0

DISTANCE MATRIX: CHEMISTRY

	A	B	C	D	E	F	G	H	I	J
A	0.0	0.8519	0.8148	0.7407	0.5926	0.8148	0.7407	0.8000	0.7391	0.5909
B	0.8519	0.0	0.3333	0.6296	0.7037	0.7037	0.8519	0.4800	0.7391	0.8182
C	0.8148	0.3333	0.0	0.6667	0.6667	0.6667	0.8148	0.4000	0.5652	0.7273
D	0.7407	0.6296	0.6667	0.0	0.3704	0.5185	0.8148	0.7200	0.6957	0.5909
E	0.5926	0.7037	0.6667	0.3704	0.0	0.5926	0.7407	0.6800	0.7391	0.5909
F	0.8148	0.7037	0.6667	0.5185	0.5926	0.0	0.5926	1.0000	0.6522	0.4545
G	0.7407	0.8519	0.8148	0.8148	0.7407	0.5926	0.0	1.0800	0.7826	0.6364
H	0.8000	0.4800	0.4000	0.7200	0.6800	1.0000	1.0800	0.0	0.7826	1.0455
I	0.7391	0.7391	0.5652	0.6957	0.7391	0.6522	0.7826	0.7826	0.0	0.3182
J	0.5909	0.8182	0.7273	0.5909	0.5909	0.4545	0.6364	1.0455	0.3182	0.0

DISTANCE MATRIX: COMPUTER SCIENCE

	A	B	C	D	E	F	G	H	I	J
A	0.0	0.6667	0.6250	0.3750	0.5000	0.6250	0.5417	0.6667	0.9091	0.6000
B	0.6667	0.0	0.4583	0.5417	0.6667	0.8750	0.7083	0.4286	0.5455	0.7000
C	0.6250	0.4583	0.0	0.5833	0.5417	0.6667	0.5833	0.6667	0.6818	0.6000
D	0.3750	0.5417	0.5833	0.0	0.2917	0.5000	0.5000	0.6190	0.6818	0.5000
E	0.5000	0.6667	0.5417	0.2917	0.0	0.4583	0.3750	0.9524	0.7273	0.4500
F	0.6250	0.8750	0.6667	0.5000	0.4583	0.0	0.2500	0.7143	0.4091	0.2000
G	0.5417	0.7083	0.5833	0.5000	0.3750	0.2500	0.0	0.7619	0.5455	0.2500
H	0.6667	0.4286	0.6667	0.6190	0.9524	0.7143	0.7619	0.0	0.3500	0.5556
I	0.9091	0.5455	0.6818	0.6818	0.7273	0.4091	0.5455	0.3500	0.0	0.2000
J	0.6000	0.7000	0.6000	0.5000	0.4500	0.2000	0.2500	0.5556	0.2000	0.0

DISTANCE MATRIX: ALL DISCIPLINES (exclude MBA and English)

	A	B	C	D	E	F	G	H	I	J
A	0.0	0.6504	0.6829	0.5203	0.5285	0.5610	0.6585	0.7652	0.7383	0.6075
B	0.6504	0.0	0.3871	0.6371	0.7097	0.6371	0.7097	0.6293	0.7570	0.8241
C	0.6829	0.3871	0.0	0.6694	0.6774	0.6048	0.6774	0.6121	0.6822	0.7222
D	0.5203	0.6371	0.6694	0.0	0.2984	0.5000	0.5565	0.6983	0.7009	0.6574
E	0.5285	0.7097	0.6774	0.2984	0.0	0.5081	0.5323	0.7500	0.7103	0.6019
F	0.5610	0.6371	0.6048	0.5000	0.5081	0.0	0.4919	0.8103	0.5981	0.5000
G	0.6585	0.7097	0.6774	0.5565	0.5323	0.4919	0.0	0.7845	0.6355	0.5185
H	0.7652	0.6293	0.6121	0.6983	0.7500	0.8103	0.7845	0.0	0.7212	0.7905
I	0.7383	0.7570	0.6822	0.7009	0.7103	0.5981	0.6355	0.7212	0.0	0.2692
J	0.6075	0.8241	0.7222	0.6574	0.6019	0.5000	0.5185	0.7905	0.2692	0.0

TOEFL Research Reports currently available . . .

Report 1. *The Performance of Native Speakers of English on the Test of English as a Foreign Language.* John L. D. Clark. November 1977.

Report 2. *An Evaluation of Alternative Item Formats for Testing English as a Foreign Language.* Lewis W. Pike. June 1979.

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